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BOWSPRIT

All of us live at once in the past, present, and future, but some of us are more aware of one than another of our available dimensions of time. As a people, Americans seem always to have found the present most real, and next real the future, not the past.

This issue of the *Review* suggests this fact, inasmuch as almost all of the articles, whatever their subject, look to the future as do most of the articles in the journals currently appearing in America.

The issue opens with an article by a sociologist, *Daniel Bell,* on "The Year 2000," written some time ago as an introduction to a serious, and entertaining, effort of a group of scholars to anticipate the future.

Another sociologist, *Suzanne Keller,* writes with sober objectivity in "Megalopolis Must Serve Many Kinds of Man" of the sociological inputs which she sees as essential to effective planning for the urban peoples of the future, wherever they may be.

The following three articles focus primarily on aspects of the future in some of the currently pre-industrial societies and on America's future relationship with them.

In "Economic Development and Human Talents" *Peter F. Drucker* points out some weaknesses in earlier aid programmes and the impossibility in the twentieth century of creating rapid development simply by the injection of foreign capital.

True development, he says, will depend primarily on local initiative and individual skill and will; with Governments—domestic and foreign—serving as assisters, not directors, and with capital—domestic and foreign—made available only in response to local demand and effort. Many experts here and abroad may disagree with him, but they are likely to find his argument deserving of careful thought.

In "Asia and America at the Crossroads" *Kenneth T. Young* foresees Asian primacy rather than foreign predominance as the political reality of the 1970's, hails it as evidence of renewed Asian strength, and looks forward to new forms of regional cooperation among Asian countries, assisted but not dominated by other countries. He calls for a new American style in the next period, for less American presence and a more modest, yet supportive partnership.

Lucian W. Pye examines the problems of China today in the light of Chinese history and traditions, in "The Authority Crisis in Chinese Politics." Much of Mao's China, he finds, can be explained by the time-honoured concerns of the Chinese for ideology, hierarchy, and authority. He believes that the outside world can do little to influence China today. But the internal necessities of that vast country will lead gradually to a resolution of its "authority crisis" and, as a result, to a new ability in the years ahead to live in a pluralistic world.

The articles which follow consider more directly internal American possibilities for the future.

In "The Technetronic Age," *Zbigniew Brzezinski* contributes a bold picture of what lies ahead as America pioneers in what he calls a "technetronic society"—a society shaped by the impact of technology and electronics.

He predicts widening gaps between pre-industrial,

industrial, and technetronic societies, and, in the last named, expanding options and tensions. The thinking represented by this article seems to have a direct correlation with the publicized "malaise" among seemingly fortunate youth in the highly industrialized countries as they ask: *Quo vadis.*

Also looking ahead, *Joseph Wood Krutch* in "A Plea for Moral Choices" urges a search for new criteria to be used in deciding what to foster among the many scientific and technological developments which can be undertaken. Faced by seemingly limitless possibilities for shaping the future, scientists and humanists together must try, he says, to formulate now what types of research are most likely to be in the interests of humanity.

In "Another 'Two Cultures': Humane and Professional Approaches to Literature" *G.S. Rousseau* describes some problems in the university when the subject relates to a narrow investigation of the past and youths are primarily interested in the future, "ideas," "relevance," and their "identity." His article suggests the adverse impact on humanistic studies of early specialization, the glamour and power of science, and the democratization of higher education which brings to the university for the first time in history a majority seeking practical benefits rather than broadly humane development.

It is an ironic, possibly tragic, picture for a time when many youths yearn for high values and large purposes, and many of their elders—like Mr. Krutch in the preceding article—are troubled lest too few broadly based humanists are being reared to have an influence on the decisions which will shape the future.

Douglas M. Davis rejoices in the new tools, materials, and imagery which technology has supplied the artist, and the new partnership of artists and machine in the creative process. "The Artist and the Machine" suggests another aspect of the anticipated new "gap" between old societies and the coming technetronic one.

Imbued with technology from childhood, artists in the technetronic society will use the products of technology in their creations, naturally, as a birthright. Artists coming from pre-industrial and industrial societies who do not find artistic inspiration within their society and turn too facilely to technetronics for models may appear more imitative than interpretive.

Collective bargaining, long familiar in the private sector of the economy, is now being adopted by the rapidly growing unions of professional workers in the public sector. In "Trade Unionism Goes Public," *Everett Kassalow* predicts, after the initial turbulence of change, a new era in union-management relations. As highly skilled and professional employees in the public sector organize, they will have a new influence on public policies and in the national councils of labour.

All the preceding articles represent the thinking mind in self-directed action. In "The Body Makes The Minde" *Stanley Burnshaw* reminds us of the role of the body in our thought-processes, of the physiological bases of creative ideas, of how much more often, in spite of the efforts to think and do consciously, we are in fact being thought, are being lived. "What is man, that thou art mindful of him, . . ?"

In "Book World" *Sujit Mukherjee* presents a lively and admirably balanced review of the revised edition of Alfred Kazin's "On Native Grounds," and *Irving Howe,* reviewing Carlos Baker's biography of Hemingway, discusses the moral style of Hemingway and his contemporaries.

M.C.

THE YEAR 2000

DANIEL BELL

Can men cope rationally with a world of accelerating social and technological change? If so, what new political and social structures, what new attitudes are needed? These were some of the questions posed to a group of educators, scientists, and social scientists who made up the Commission of the Year 2000 under the auspices of the American Academy of Arts and Sciences. Their discussions were published in "Daedalus," Summer, 1967, from which the following article is excerpted with permission.

Its author, Daniel Bell, is chairman of the Commission and Professor of Sociology at Columbia University. He is also the author of "The End of Ideology," which argues that the attempt to deal with social problems through ideological myths has failed.

TIME, SAID ST. AUGUSTINE, is a threefold present: the present as we experience it, the past as a present memory and the future as a present expectation. By that criterion, the world of the year 2000 has already arrived, for in the decisions we make now, in the way we design our environment and thus sketch the lines of constraints, the future is committed.

Just as the gridiron pattern of city streets in the 19th century shaped the linear growth of cities in the 20th, so the new networks of radial highways, the location of new towns, the reordering of graduate school curricula, the decision to create or not to create a computer utility as a single system will frame the tectonics of the 21st century.

This is the premise of the Commission on the Year 2000. It is an effort to indicate now the future consequences of present public policy decisions, to anticipate future problems and to begin the design of alternative solutions so that our society has more options and can make a moral choice rather than be constrained, as is so often the case when problems descend upon us unnoticed and demand an immediate response.

But what began a few years ago as a serious academic enterprise has been seized, predictably, by the mass media and the popular imagination. The Columbia Broadcasting System has revamped its documentary television programme, "The 20th Century," into "The 21st Century," to depict the marvels of the future. *Time* has published a compact essay on "The Futurists: Looking Towards A.D. 2000." The theme of the year 2000 now appears repeatedly on lecture circuits and in the feature pages of newspapers.

A Magic Number

All of this was probably to be expected. Much of the attention given the year 2000 is due clearly to the magic of the millennial number.

Men have always been attracted by the mystical lure of the *chiloi*, the Greek word for 1000 from which we get our religious term *chiliasm,* the belief in a coming life free from the imperfections of human existence. The early Christian expectation of a *parousia* (prophesied in Revelation 20) placed its hopes for a Second Coming at the end of a 100-year period.

The millennial point is only 32 years away and within the lifetime expectation of more than three fourths of all Americans now alive.

A good deal of today's interest in the future arises also from the bewitchment of technology and the way it has transformed the world, and most of the images of the future have concentrated on dazzling technological prospects. The year 2000 has all the ingredients for becoming, if it has not already become, a Hula Hoop craze.

All of this has its good side and its bad. What is bad, to begin with, is that a serious and necessary effort is in danger of being turned into a fad, and any fad trivializes a subject and quickly wears it out. A second evil is that many more expectations are aroused than can be fulfilled. There do not exist today any reliable methods of forecasting (even in technology).

The third drawback is that our major attention, reflecting an aspect of our culture, becomes concentrated on "gadgets," and breezy claims are made that such gadgets will transform our lives. Not only do people forget the predicted gadgets that failed to appear—for example, the replacement of the daily newspaper by facsimile that would come out of the television set—but the startling claims of yesterday quickly become the prosaic facts of today.

A Stable Framework

The simple point is that a complex society is not changed by a flick of the wrist. Considered from the viewpoint of gadgetry, the United States in the year 2000 will be more like the United States in the year 1967 than different.

The basic framework of day-to-day life has been shaped in the last 50 years by the ways the automobile, the airplane, the telephone and television have brought people together and increased the interactions among them. It is highly unlikely that in the next 32 years (if one takes the year 2000 literally, not symbolically) the impending changes in technology will radically alter this framework.

Supersonic transport will "tighten" the network and bring the world more directly into the domestic frame. The major challenges and problems already confronting our society, however—a livable physical environment, effective urban planning, the expansion of postgraduate education, the pressures of density and the reduction of privacy, the fragility of political institutions beset by many pressure groups—will extend to the end of the century.

This is not to say that substantial changes will not take place as they have been doing in the past 32 years. But one has to be clear about the character of such changes. In general, there are four sources of change in society, and they can be chartered with differential ease.

The first source of change is technology. In the next 32 years, we are likely to see great changes growing out of the new biomedical engineering, the computer and possibly weather modification.

Biomedical engineering, particularly its possibilities of organ transplant, genetic modification and control of disease, promises a substantial increase in human longevity. Previous steps, principally the control of infant mortality, raised the average life expectancy; now the prolongation of life by the control of aging may be at hand. This may accentuate a tendency, already visible, in which the chief concern of a person (particularly in middle age) is not death from disease but staying young, thus strengthening the hedonistic elements in our culture.

The impact of the computer will be vast. We will probably see a national information-computer-utility system with tens of thousands of terminals in homes and offices "hooked" into giant central computers providing library and information services, retail ordering and billing services and the like. But while the social and economic consequences will be huge, the effect will be greater on the structure of intellectual life and the character of organizations than on the day-to-day life of the person.

Weather modification, still only on the horizon, would shape a control of environment men have dreamed of for thousands of years, but the working out of the economic and social arrangements would pose some difficult problems for human civilization.

In all this, one should note that "technology" is itself changing. Instead of a machine technology, we will have increasingly an "intellectual technology" in which such techniques as simulation, model construction, linear programming and operations research will be hitched to the computers and will become the new tools of decision-making.

A Problem of Size

The second source of change, one of the most powerful engines in American society, represents the diffusion of existing goods and privileges in society, whether they be tangible goods or social claims on the community. This, in effect, is the realization of the promise of equality which underlies the founding of this country and the manifestation of Tocqueville's summation of American democracy: What the few have today, the many will demand tomorrow.

When diffusion begins to take rapid sway (as has recently been seen in higher education), it changes the size and scale of the servicing institution and, consequently, that institution's character. Dealing with such problems of size and scale and planning for the kind of institution we want becomes the urgent task of anticipating, not predicting, the future; for example, the university should not become a corporate entity because of the pressure of size.

A third kind of change involves structural developments in society. The centralization of the American political system in the last 30 years has marked an extraordinary transformation of American life. It is the result, in part, of our becoming a national society through the new transportation and the mass media. But it also grew out of the need for central instrumentalities first to mediate the conflicts between large functional groups and later to mobilize the society because of the demands of war.

A different, more subtle structural change has been the transformation of the economy into a "post-industrial" society. The weight of the economy has shifted from the product sector to services; more importantly, the sources of innovation are becoming lodged in the intellectual institutions, principally the universities and research organizations, rather than in the older industrial corporations.

The consequences of such a change are enormous for the modes of access to place and privilege in the society. They make the universities the "gatekeepers" of society. They make more urgent the husbanding of "human capital" rather than financial capital, and they raise crucial sociological questions about the relationship of the new technocratic modes of decision-making to the political structures of society.

The fourth source of change—perhaps the most important and certainly the most refractory to prediction—is the relationship of the United States to the rest of the world. In the last 25 years, our lives have been transformed most drastically by our participation in World War II, by our military and political posture in the Cold War, and by our relationship to the extraordinary number of new states that have emerged since 1945. The problem of detente in a nuclear age, the gap between rich and poor nations, the threatening role of "colour" as a divisive political force, the changing balance of forces—both technological and moral—are all questions that reach from the present into the distant future.

Not Gadgets but Social Arrangements

We have begun to realize—and this is the positive side of the current interest in the year 2000—that it is possible to direct some of this change consciously, and because a normative commitment underlies any humanistic approach to social policy, we can try to widen the area of choice. Looking ahead, we realize that the rebuilding of American cities, for example, entails a 35-year cycle, and one can rebuild cities only by making long-range commitments.

In the process, we are also forced to consider the adequacy of our political mechanisms, since Congress neither has a capital budget nor budgets money for long-range commitments. Furthermore, one must question whether a national society can sensibly be structured according to the present crazy-quilt pattern of 50 states and thousands of unwieldy municipalities.

In short, what matters most about the year 2000 is not the gadgets that might, on the serious side, introduce prosthesis in the human body or, on the lighter side, use silicones to lift wrinkles, but the kinds of social arrangements that can deal adequately with the problems we shall confront.

More and more we are becoming a "communal society" in which the public sector has a greater importance and in which the goods and services of the society—those affecting cities, education, medical care and the environment—will increasingly have to be purchased jointly. Hence, the problem of social choice and individual values—the question of how to reconcile conflicting individual desires through the political mechanism rather than the market—becomes a potential source of discord.

The relation of the individual to bureaucratic structures will be subject to even greater strain. The increasing centralization of government creates a need for new social forms that will allow the citizenry greater participation in making decisions. The growth of a large, educated professional and technical class, with its desire for greater autonomy in work, will force institutions to reorganize the older bureaucratic patterns of hierarchy and detailed specialization.

The individual will live longer and face the problem of renewed education and new careers. The family as the source of primordial attachment may become less important for the child, in both his early schooling and his emotional reinforcement.

This will be a more mobile and more crowded world, raising problems of privacy and stress. The new densities and "communications overload" may increase the potentiality for irrational outbursts in our society.

Finally, there is the growing disjunction between the "culture" and the "social structure." Society becomes more functionally organized, geared to knowledge and the mastery of complex bodies of learning. The culture becomes more hedonistic, permissive, expressive, distrustful of authority and of the delayed-gratification of a bourgeois, achievement-oriented technological world. This tension between the "technocratic" and the "apocalyptic" modes, particularly among the intellectuals, may be one of the great ruptures in moral temper, especially in the universities.

More Open Conflict

The only prediction about the future that one can make with certainty is that public authorities will face more problems than they have at any previous time in history. This arises from some simple facts:

Social issues are more and more intricately related to one another because the impact of any major change is felt quickly throughout the national and even the international system. Individuals and groups, more conscious of these problems as problems, demand action instead of quietly accepting their fate.

Because more and more decisions will be made in the political arena than in the market, there will be more open community conflict. The political arena is an open cockpit where decision points are more visible than they are in the impersonal market; different groups will clash more directly as they contend for advantage or seek to resist change in society.

For all these reasons, the society of the year 2000 will be more fragile, more susceptible to hostilities and to polarization along many different lines. Yet to say this is not to surrender to despair, for the power to deal with these problems is also present.

It resides, first, in the marvellous productive capacity of our system to generate sufficient economic resources for meeting most of the country's social and economic needs. It is latent in the flexibility of the American political system, its adaptability to change and its ability to create new social forms to meet these challenges —public corporations, regional compacts, nonprofit organizations, responsive municipalities and the like.

The problem of the future consists in defining one's priorities and making the necessary commitments. This is an intention of the Commission on the Year 2000.

MEGALOPOLIS MUST SERVE MANY KINDS OF MAN

SUZANNE KELLER

Professor of Sociology, Suzanne Keller is the first woman to achieve a permanent appointment at Princeton University. Her books include "Beyond The Ruling Class" and "The Urban Neighbourhood."

In the following article, which is adapted from a lecture originally published in "Ekistics," she suggests some of the sociological factors which must be considered in any serious planning for metropolitan development.

DEFINITIONS OF what is human vary from culture to culture and setting to setting not because of man's biological characteristics but because of his symbolic expression of them, these being linked to culturally defined purposes, ideals, and ambitions. There are few universals.

To understand men's needs, we cannot ignore the biological substructure, but we also cannot rely solely on it, since needs are always defined by and relative to a particular social context. Knowledge of man's natural capacity to fight and kill will not enable you to determine when, where, and why he will do so. This can be determined only if one knows what is meaningful for the individuals and groups one is trying to understand, and all meanings are somehow arbitrary even if they appear reasonable.

It is this system of meanings which is bound to change in the world of Megalopolis if it is to be a functional as well as a physical entity. Here I can only suggest in a most cursory way some of the changes we may anticipate in the meanings and symbols that will define man and his purposes in this emerging world.

Since Megalopolis cannot develop unless a high level of wealth has been attained, enough certainly to assuage most of men's biological hungers, the themes associated with scarcity, with accumulation, with fears of not having enough necessities will disappear in art and morals, and as incentives to achievement.

Once these biological propellers are gone, how will the social engine move?

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Can we invent equally compelling motives or will we have a society of satiated but bored men? I remind you here that one of the seven deadly sins in medieval society was boredom, or acedia, said to have afflicted with particular intensity the upper-class women of that time.

As far as I can determine, societies entering this future phase of human development will develop ideals associated not with accumulation but with discovery, with problem-solving as an end in itself. Once true for small, very small, minorities of men—the thinkers, dreamers, and artists of the tribe—this condition will now become endemic, creating a new order of stratification based not on blood or wealth but on creative contributions in every field.

The motor and dynamic pulse of such a society will differ from other types in that its rewards will go to those who succeed in finding new intellectual solutions, new technical applications, new artistic and moral visions that will make life more meaningful and humane.

Stages in Social Evolution

Three broad stages may be said to describe social evolution from the era of hunters and food gatherers to the atomic and space age: (1) the sustenance society (ideal: to survive on the most elementary level); (2) the productive society (ideal: to increase and multiply wealth, tools, members); and (3) the emerging problem-setting and problem-solving society (ideal: to create)—more fluid and dynamic than any we have yet known, in which the prediction of Maxim Gorki may well be realized: "Aesthetics," he said, "will be the ethics of the future."

This means that a monolithic value system in manners, morals, and education, will give way to a pluralism of such value systems co-existing in the same societal space, each competing for the allegiance of some portion of humanity. Many currently marginal patterns and standards, as yet found mainly among small coteries of pace-setters and style changers—such as the hippies, the jet set, the bohemians and the rebels—will become dominant and widespread.

Along with this we may expect profound changes in the institutions of society—the family, male-female relations, education, work and mobility, stratification and power, all of these to be mediated by new forms of association and dissociation as yet only dimly perceived.

Thus, Margaret Mead has recently proposed that American society, in which some of these trends are perhaps more apparent than in other societies, legitimatize what is already widely prevalent practice—namely, a dual system of marriage: one for those couples not able or not intending to have children—and here purely personal inclinations will govern behaviour, duration of the relationship, and interpersonal responsibilities; and another for those couples who do have children, who would thereupon enter a definite and stricter system of collective rules until their social responsibilities were absolved. This is only one of many such proposed changes we will have to consider and try to anticipate in planning for a megalopolitan future.

All of this is, of course, disturbing

and unsettling for those of us who still yearn for the return of a clear-cut, monolithic social and moral order to which all men should conform. But if I read modern society correctly, such hopes are vain.

Just as we are forced to think in terms of multiple metropolitan centres, so we must learn to think in terms of multiple social, moral, and spiritual centres, in which compulsion will play a lesser and self-regulative mechanisms a far greater role than they do today.

This will make for a far more fluid society than now exists. It will also give rise to a temporary increase in all sorts of personal and emotional dislocations in the social structure, such as generation conflict, anomie, mental illness, and spiritual uncertainty. What then of the human scale and of human needs in such a society?

I think it highly improbable that planners can devise human scale environments without having some operational definition of what conception of human being they are trying to achieve or endorse. But definitions—or more importantly, discussions—that would help us formulate them, are notably rare. Instead we try to manage with assumptions whose validity or utility must be taken on faith.

The current planning literature exhibits two somewhat opposed perspectives on this matter of the human scale. The one identifies this scale with the physically small unit geared to satisfying certain basic, fundamental, and somehow primary needs. Following standard usage in other fields, let us call this the *micro-scale* approach.

The other starts from the opposite pole by concentrating on the largest scale possible within which a particular version of humanity will find its expression.

It is impossible, according to this view, to define what is human until we have defined the broad aggregate of social and cultural contexts within which human beings will function and from which they will derive their *raison d'etre.* We will call this the *macro-scale* approach. Clearly they differ. Clearly plans based upon each notion will differ. Let us therefore take a closer look at each.

Micro-scale Planning

The *micro-scale* approach leans heavily on the idea that the human scale —that is, one in harmony with man's capacities and purposes—should be intimate, personal, and geared to his senses. Shapes, distances, and the spacing of services should therefore be planned for sensory responses as far as possible unaffected by technological intervention.

Unwittingly, however, this approach all too readily becomes reductionist, somehow underemphasizing those inventions and discoveries that have led to the communications satellites and all those other extensions of man's senses without which the modern world would be inconceivable.

It also, inadvertently perhaps, pays too little attention to the imagination, that sixth sense that enables man to alter, disguise, and even reverse his sensory responses by denial and fantasy. "What men perceive as real is real in its consequences" goes a famous sociological dictum.

And the perception of reality—as optical illusions, hysterical visions, and the great intellectual breakthroughs signify—is not alone or even primarily determined by physiology but by desire, interest, interpersonal influence, and social organization. Thus, E.T. Hall, in a recent article on the "Anthropology of Space," concluded that "it can be demonstrated that man has no space sense per se.... The perception of man-made space, and the satisfactions gained therefrom are largely dependent upon the degree of congruence between occasion, activity, and culturally based sensory mixes."

There is also the tendency to treat physiological yardsticks as absolutes instead of as relative and malleable. For example, the early efforts by Ebenezer Howard and others to base the size of neighbourhood units on certain walking distances between homes, shops, and schools, though deceptively simple and objective, often led to unwanted or unworkable results.

For one thing, such mechanical notions of distance ignore other conceptions that might reverse their effects. A second may seem an eternity if love or death is waiting, and ten feet will seem long or short depending on the moods and motives of those traversing them.

Nor can we ignore the social distance that unites or divides men according to categorical judgements of desirability and worth, as when masters and servants are separated by sharp though invisible barriers superimposed on the physical space they share. "One is not," wrote the poet Wallace Stevens, "a duchess one hundred yards from a carriage."

All of this only goes to show that the calculus of human scale distance must include one or more of these other dimensions—functional, psychological, and social distance—to make the seemingly simple physical yardstick humanly viable.

Similar questions may be raised about efforts to construct human scale environments by reducing dimensions and numbers, and by thus removing certain earmarks of the city, hoping to eliminate the evils associated with them.

But the virtues of the scales thereby to be recaptured and idealized in nostalgic recall did not stem from their absolute dimensions. Large and small are relative notions; after all they stemmed from a special kind of social, economic and moral synthesis, and overlapping and intertwining of the varied activities and relationships that made up the round of collective life.

In line with this, Jean Gottmann has recently shown the extraordinary shifts in conceptions of ideal city sizes, the stipulated populations ranging from a few thousand some decades ago to some 200,000 in the new towns about to be constructed.

Clearly we are dealing not with absolute but with relative magnitudes. And social cohesiveness, which may be greater in units of 100,000 than in those of 10,000, is largely a matter of organization, as the huge corporations have recently taught us. "The effective population of Athens at the height of its glory," David Riesman has observed, "was far smaller than that of Newark today."

But we will not thereby recapture the

ancient Athens in the modern Newark. Moreover, ancient Athens may have been small in numbers by today's standards but it was large for its environment in its time.

Macro-scale Planning

This then leads us directly to the *macro-scale,* since its limits and our relations to it determine our response to *micro-scale* environments.

According to the opinions recently expressed by a number of writers, among them Gutkind, Norton, and Tony Gwilliam, a student of Buckminster Fuller, no amount of manipulation of the small scale will make it more human or more satisfactory for daily living and working if the larger context is inadequate or neglected.

This is the substance of the conclusion reached in a United Nations Panel Discussion some years ago:

> We have been driven by sentiment, by commercial advertising and by a great many traditions of our own to continue to think of the dwelling and of the family in the dwelling as the most important unit of society....let's start our effort of the next few years by placing the emphasis upon the city as the real determining factor, not the dwelling and not even the neighbourhood.—*Mental Health Aspects of Urbanization,* March, 1957.

The decision to let the local scale take second place rests on the growing awareness that local units are not autonomous and that they change as those aggregates upon which they depend change. The rise of Megalopolis should thus further diminish the self-containment of local units as places where important things happen and where what happens really matters.

The big existential questions always of greatest importance to men—what shall we do and how shall we live—could once be discussed and dealt with in local settings. But this is less and less true, as mass stimuli do not originate but only reverberate in local places and as local leaders are no longer capable of providing a sense of purpose and direction.

This is why Richard Meier proposes a developmental focus in Megalopolis on what he calls the "world servicing professionals"—the cities' increasing number of executives, artists, scientists, and thinkers who will make Megalopolis move.

This also gives rise to changed meanings of place and space in the affairs of men, as inclusive territoriality, that earmark of sedentary societies, gives way to a partial or even interchangeable territoriality on which men will base the the communities they create. "For the wealthiest, most powerful, or most privileged of our society this is already the case," writes John Dyckman with reference to the U.S.; "their influence is exerted through corporate, not geographic channels, and it tends to gain primacy thereby."

Even on a simpler level the rise of non-local loyalties, influences, and perspectives is strikingly apparent. "Custom has been replaced by fashion, and fashion does not originate in Bethnal Green," as Michael Young and Peter Wilmott have observed in their study of East London.

Thus the nature of a local unit, in fact the very definition of what is considered local, depends on the nature of some larger entity. Where this is the whole world, nations are local units; the universe is local where the entire solar system becomes the frame of reference.

Why Emphasize Large-scale Units?

In urging a shift of emphasis away from small to large-scale units I am not advocating disregard of the small-scale, only a change of balance and priorities. And this is why I would place such great stress on attempts, however tentative, to define, or illuminate, the essential properties of the emerging Megalopolis.

For man's ability to locate himself in a given space does not rest on its absolute dimensions of size and breadth so much as on its linkage to a less tangible totality, and on the perceived inter-connections between them.

Investigation of residents in urban districts, new towns, and housing projects has shown that individuals who are ignorant of the interplay between their local areas and a larger totality are unable to identify more than a small fraction of the space near their immediate dwellings and are confused about where their sub-units begin and end.

Moreover, the common tendency to view the linkage between part and whole as a one-way process that inevitably proceeds from the smaller to the larger needs to be questioned. Just as the child is father to the man, so neighbourhood feeling is thought to father wider loyalties to cities and nations. To my mind such a view is based on a mechanical, and not entirely convincing, analogy.

Drawing on the early insights of Gestalt psychology, however, with its emphasis on figure-ground relations, there seems to be some reason to argue just the opposite. If we designate "figure" as the small scale and "ground" as the large scale, a meaningful discrimination of the small scale depends on first seeing the larger ground.

In order, therefore, for people to locate themselves physically, emotionally, and intellectually in megalopolitan space, that space will have to be represented for them in some meaningful way. Without it, their perceptual and conceptual grasp of their environment becomes inconsistent and unreliable.

According to this view, then, planning for the human scale in Megalopolis should proceed from the larger to the smaller scale as it is the larger that sets the limits within which experience assumes its meaning.

The Complexity of Planning

It is clearly impossible to plan for human needs in Megalopolis if we lack operational definitions and knowledge of their range and depth. Again in the biological sphere we are fairly clear where we stand. At the psychological level, however, we are less certain, not because we lack lists of needs but because we lack independent validation for them as well as substantial evidence on their relative priorities.

The sociologist W. I. Thomas long ago suggested that the four basic needs (or wishes) of individuals are security, response, freedom, and new experience.

Presumably, later categorizations of the needs for love, respect, autonomy, and opportunities for self-expression and fulfilment, could be subsumed under these headings.

But there again we cannot bypass the varying cultural definitions and contents of these needs. Self-fulfilment may mean dying for an Emperor, creating a work of art, or having as many children as possible. Nor can we bypass the growing significance, in Megalopolis, of needs based on man's expanding symbolic repertoire, due to the rapidly changing pulse of modern life where new needs are engendered with each new discovery and opportunity.

Much controversy therefore exists among planners as to what basic needs of man may be planned for. Let us take as an example the amount of greenery and open space people require.

Answers abound, yet there is little agreement and, even when there is, it is not at all clear why particular standards have been chosen. This cannot be right, says the Finnish architect, Alvar Aalto, as he offers us the example of Venice, a city which at its founding had 28,000 courtesans but not a single tree.

"Human beings there were without a single green leaf, they were born, lived, and died there more or less in the same sequence as we do today".... But then we must ask: did the Venetians not need trees and greenery? Are courtesans a possible substitute for these? Or are we perhaps wrong in assuming the desirable to be also necessary?

In addition to these difficulties, we may also note an often unacknowledged preference among planners for what, for want of a better term, I shall call the positive needs of human beings and to ignore their negative, undesirable, and objectionable needs and desires.

At the last Delos Symposium, Karl Menninger directed our attention to this very point when he charged that many planners assume that "human beings are all alike in their general functioning, seeking certain common 'needs', multiplying, socializing, living and dying according to similar general principles—modified, to be sure, by economics, fluctuations of the weather, interruptions by war and other adventitious disasters."

These assumptions omit certain elements, such as man's "innate, universal omnipresent drive towards the expression of aggression," which will defeat the best planning. "Man can, will, and does destroy almost as fast as he creates." This is a big charge, which, if true, should certainly make us pause before we equate the satisfactions of human needs with the creation of a peaceful, harmonious, or stable life.

Human 'Needs'

The first question that comes to my mind is whether the people who destroy are the same ones who create. Or are they, as Buckminster Fuller has recently suggested, those who have nothing to lose by fighting and destroying, whose prospects for life are marred by hunger, disease, and premature death which make fighting, risking all, or dying now perfectly logical alternatives. Once abundance is achieved, however, "men will not even think of fighting."

These two views of human needs

would lead us to quite different plans. If Menninger convinces us, then we should not evade or wish away man's destructive impulses but try to channel them into socially productive or neutral directions. If we go along with Fuller, we would declare the attainment of a basic minimum our first order of priority. And if we listen to the psychologist B. F. Skinner, we would not try to satisfy any of man's needs directly at all.

The oft-noted unhappiness of those who "have everything," he suggests in the September 1966 *Ekistics*, is not because some subtle need of theirs may have been overlooked but because the satisfaction of needs cannot become an end in itself and still satisfy. Needs grow by what they feed on, as the poet would have it. Their definition as needs, hence their gratification, are situationally determined and are thus contingent on meaningful and important activities.

The trouble with affluent and welfare societies, he continues, is precisely that they do not make rewards (he calls them reinforcers) contingent on particular forms of behaviour, hence the ennui of the person who has everything or the melancholia of the person who does nothing.

If life has no meaning, if nothing really matters, then neither does the satisfaction of needs. This helps explain the paradox that deprivation for the sake of a cause need not engender unhappiness whereas satiation without one may.

Once again, the context within which men experience such earthly goods as comfort, wealth, or leisure—if these are indeed to be "goods" rather than just "things"—will determine whether they arouse delight or indifference.

The reluctance to consider men's negative propensities is also evident in the typical neighbourhood unit plans with their obliviousness to the existence of deviant, delinquent, or marginal urban individuals and groups. And yet these individuals and groups are as much a part of the urban scene as are their respectable counterparts.

Hence neither urban renewal nor slum clearance, public housing projects nor suburban developments, can seem to eradicate them. They scatter and go into hiding for a time only to reappear again and again like so many heads of Hydra, unplanned for, unwanted perhaps, but enduring urban creations in search of shelter and space. To include them in our plans for human scale environments violates our principles but to ignore them is both unrealistic and inhuman.

Can Megalopolis be Community?

Now to community in Megalopolis. It is curious that this offspring of industrialism, computers, high speed transport and world wide travel, should make most of us feel more than a little uneasy. And yet, if one views man as a highly adaptable creature, one need no more fear Megalopolis than one need have feared the emergence of towns and villages in the past.

Problems did and will exist in each—human frailties, ignorance, anxiety, and loneliness. Which human settlement does not now have its share of them and will not for some time to come, since we still know too little about their causes and next to nothing about their cures?

If village life had its drawbacks as well as its advantages, why not Megalopolis? Essentially it is but another form of social organization, another context of collective opportunity and necessity, within which men will try to live out their individual lives as best they can.

If we define community as an arena of collective experience and endeavour, held together by the twin processes of communication and communion, then Megalopolis will be a kind of community containing many subcommunities within it.

An old Polish peasant, when asked how far a community extends, put the matter neatly: a community, he answered, reaches as far as the word of a man reaches, as far as a man is talked about. Megalopolis, though it will reach farther than Metropolis, will thus still be contained by those twin processes of how far words reach and how far away someone cares to listen to them.

It will develop because the technology of communication will permit its parts—be they men, towns, or organizations—to be in contact. It will cohere because a sufficient number of its inhabitants will have some sense of sentimental or functional interdependence. Its limits will be determined less by absolute spatial dimensions than by the rapidity with which the aggregate can be moved to act and react, how swiftly information can travel, and by the viability of its feedback systems.

The human scale in this new world, as important in Megalopolis as in the village, will have to develop its own new visual, spatial, and emotional forms based on meanings and symbols forged by space-age men and appropriate for their reality. This means to build *on* the past without building *for* the past.

It means also that just as we must not ignore spatial needs of particular groups —the aged, the ill, immigrants, and young housewives—so we must not impose their requirements on the rest of the population for whom they may be unrealistic or irrelevant.

For alongside the survival of what I shall call segmental territoriality there exists also—and this is a striking feature of the twentieth century—what Arnold Toynbee has called the trend towards a global diaspora, as man moves on, over, and under this planet to an unprecedented degree.

I cannot help but feel, therefore, that only the children now growing up with rockets, teaching machines, Metropolises, and trips to the moon as part of the nature of things, are really our best testing ground for questions as to what is human and nonhuman in a changing world. They take for granted what all current adults must struggle to come to terms with in light of their own experiences, childhood impressions, and personal flexibility.

The Coming Megalopolitan

If you ask me what model of man I would choose to observe and study so as to help develop the human scale for the many kinds of man Megalopolis must serve, I would vote for the world traveller as first guinea pig.

This type of person—as remote from the rooted peasant image of man as the world of tomorrow is from that of yesterday—may currently be observed in the airports of the world, juggling his international currency along with his international vocabulary.

Multilingual, able to move through unknown terrains without terror, able to respond fairly flexibly to differences in schedules and customs, far more aware of different life styles and less dogmatic about erstwhile absolutes than his pre-metropolitan brother, he is perhaps the best available example of what it is possible and not possible to change in human nature in a relatively brief span of time.

His descendants will live in Megalopolis, like us in some ways, very different from us in others, but alive in and to a world we will never fully know, with its own ideals of human nature and the good life.

ECONOMIC DEVELOPMENT AND HUMAN TALENTS

PETER F. DRUCKER

The original hopes for rapid economic progress in the developing nations, says the author, have been only partially and spottily achieved. He urges a shift of emphasis from reliance on foreign investment capital to the stimulation of local initiative and individual competence and energy. His article is adapted from "The Age of Discontinuity" (Harper & Row, 1969) and is reprinted from the December 1968 issue of "Harper's" magazine by permission of the author.

Peter F. Drucker is professor of management at New York University's Graduate School of Business. His wide range of interests in economics, politics and education is reflected in such books as "The New Society," "America's Next Twenty Years," "Managing for Results," and "The Age of Discontinuity."

NO COUNTRY has developed to become a wealthy, advanced industrial nation since World War I. This is a central social and political problem of the world economy.

Between 1860 and 1910 a new major industrial nation emerged every 20 years or so. This created confidence throughout the world that economic development could be taken for granted. But for 50 years now it has not happened. We must make it happen—and in enough places to show that development can succeed if countries adopt the right policies and efforts.

In what follows I want to suggest some of the things we have learned about policies and programmes in the 20 years since President Truman first proclaimed the goal of economic development for the poor nations in his Point Four programme. What we have learned related to the roles of agriculture and capital, the nature of planning, the limited effectiveness of foreign aid and government action, and the primary importance of human competence.

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Food and Capital

In the 19th century, industrializing countries financed their development out of farm exports, even though population growth in Europe, North America and Japan was almost as rapid then as it is in developing countries today. Instead of putting pressure on the food base of the economy, this growth created markets in the more industrialized nations of Western Europe for the expanding agriculture of Germany, Hungary, Russia, the Ukraine, Romania, North America, Argentina and Australia.

Agriculture in these countries was not "advanced" technologically. Nor did it need to be. It took into cultivation new lands, where anything produced was so much increment, so much surplus. In this way developing nations not only obtained the manufactured goods for their own population, they also financed their capital imports.

It is no longer possible, however, to finance development out of agriculture. Today most of the developed countries have become food-surplus producers. And most of the underdeveloped countries need all the food they can produce to feed their own people, in any event.

Moreover, agriculture in the developed countries (excepting only Russia) is now the most technologically advanced and the most industrialized of basic industries. Consequently, productivity differentials in agriculture between developed and underdeveloped economies far outrun the differentials in manufacturing.

Under these conditions, agriculture in the poor countries simply cannot compete, no matter how low the income of their farmers. Where agriculture provided the investment capital for industry in the 19th century, today it requires very large capital investments of its own.

Capital investment from abroad is no longer the answer to development. In fact, heavy capital investment from abroad may become a barrier to development rather than a spur.

The 19th century capital investment was investment "abroad" only in a geographic sense. Most of it, whether put into harbours or rail-roads or mines, served to produce food and raw materials for the lender's industrial centres.

In financial terms this meant that the foreign investor was being repaid out of what his own countrymen paid for the grain, the cotton, or the copper whose supply his investment had made possible. There was no "transfer problem." The investment liquidated itself. To service it financially did not entail withdrawal of currency from the debtor country.

Such investment is by no means unknown today. Most of the billions invested in petroleum production around the world, for example, are being serviced out of the monies paid by the users—who, of course, are the developed industrial countries.

But the bulk of development investment today is of a different kind. It aims at creating capacity to produce for the domestic markets of the country in which the investment is made. It does not, in other words, generate the exports with which to repay the investment.

The Hazards of Aid

Investment of capital in the developing countries, therefore, tends to create a foreign-exchange liability. This has been painfully demonstrated in Latin America. It explains in large measure why the last ten years have been years of trouble there.

Latin America, through the mid-1950's, attracted almost as much capital as her development economists wanted. As a result, Latin America grew very fast during that period. But when the inflow diminished a little, crisis immediately set in. Payments on the loans and dividends remitted abroad began to use up whatever foreign exchange was available.

If a country suspended payments abroad to counteract this, its credit promptly disappeared—and so did foreign capital. If, on the other hand, a country maintained its foreign payments to maintain its credit, its growth came to an end as its capital base shrank, thus creating a deflationary crisis. This too ended the influx of foreign capital.

Developing nations need all the trade they can get. They also need capital investment, and more than they have had in the last ten years. But they can no longer depend on either as the motive power of economic development.

Yet if "trade not aid," however beguiling, is an unrealistic slogan, neither will "aid" alone do the job of economic development. Aid can only be a stimulant. The main growth has to come out of the resources of the poor countries themselves.

Effective aid acts as a catalyst releasing local energies. But unless carefully planned and ruthlessly administered, aid may also tend to inhibit the energies of the recipient. This became apparent in the U.S. surplus-food aid programme, which until recently encouraged policies that cut back rather than improved food production.

It led to gross misallocation of resources, as recipient countries felt free to invest in politically palatable but economically dubious prestige projects—steel mills, typically, or jet planes—rather than in agriculture. Beyond relief for people actually threatened with starvation, food relief should be given only sparingly. It destroys the incentive of the local farmer to increase his output.

Making the Poor Productive

We did not, during the late 19th and early 20th centuries overcome class war by philanthropy. What overcame class war was, first, new technology, particularly electric power. This new technology created new, more productive, and therefore better-paid jobs.

Secondly, the class war was overcome by education, which gave an increasing number of the children of the poor the opportunity to break out of the "class" to which in Marxist ideology they were condemned. But above all, what overcame the class war was Frederick Taylor's *Scientific Management,* which first applied knowledge to work and thereby made the labourer more productive.

We achieved whatever success we had through making the poor productive. The test for aid to nations is therefore whether it makes them capable of being productive. If it fails to do so, it is likely to make them even poorer in the—not so very—long run.

To be sure, development requires substantial amounts of money both in aid and in investment. But to succeed, these must come as support to effective and going efforts of the local community. Aid, for instance, might be in the form of matching grants conditional upon the organization of local efforts by the recipient. Investment might be geared to a country's development rate.

We must favour nations that have proved their ability to build if times are propitious. At the same time, we need to be able to say to other areas, "Prove your willingness to develop and then we will help you. So far, you have wasted opportunity."

This may sound very hard-boiled—and it is. But the choice before us is between wasting aid (and investment) and obtaining real development from it. All aid can do is encourage and stimulate. We, therefore, had better use it to give us what we need the most: highly visible examples of rapid, self-generated growth.

The Sense of Achievement

"Inter-governmental programmes" do not produce development. An economy cannot be developed from the outside anyhow—but least of all by "government-to-government" efforts. Foreign governments cannot impose priorities on other countries. They cannot, therefore, resist local pressures to divert scarce development resources into unproductive projects.

Military aid not only uses up scarce funds. An airplane or a destroyer is not much use unless fuel for it, lubricants, and spare parts are supplied year-in and year-out. Thus, every dollar spent on military aid has not only taken a dollar that should have gone into development, it has created a demand for an additional five or ten dollars to be diverted out of slender foreign exchange resources.

To concentrate development efforts on a few major productive priorities is elementary. Yet this rule will be disregarded if inter-governmental efforts are central to development policies.

Governments must be problem-oriented, for governments are, of necessity, protective institutions. But there is no development potential in problems; all one can do in taking care of a problem is to prevent collapse. One cannot build the new this way. Since governments have to act as governments, they cannot subordinate other goals to the priorities of economic development.

Our experience indicates that government control may be a transitory phase in development rather than either its essence or its denial. In the early stages of development, government ownership may be essential. Only government may command the high-grade human resources needed. As development proceeds, however, government becomes less and less necessary and effective.

Other institutions—businesses, hospitals, universities, and so on—become more highly developed and more complex, and increasingly require managerial autonomy as well as control by non-governmental forces such as the market. (This is what underlies the much-publicized "new economics" of the Communist countries of Europe.)

Government is needed in a worldwide development policy. The governments of the developed countries must give direction to such a policy. The governments of poor countries must be effective and purposeful. But there is one thing government can never provide: the individual's sense of achievement.

Yet this is the essential element of development: the individual's conviction that there is opportunity, energy, purpose to his society, rather than problems, inertia, and hopelessness. Development is largely a matter of the dynamics of individuals and of a local community. These can be supplied only by generating local, responsible initiative and multiplying human energies.

In any aid programme, the economist, especially the development economist employed by government, tends to impose his own values on the choice of priorities and projects. Understandably he likes things that look big, impressive, and "advanced": a petrochemical plant, for instance.

But a modest cosmetics plant, for example, gives more employment per dollar of investment than a petrochemical plant. It trains more people capable of developing and running a modern economy. It generates managers, technicians, and salesmen. And it satisfies a widespread and very human demand.

The Example of Japan

I said earlier that everyone in the 19th century took economic development for granted. An exception is Japan. In Japan there was a famous debate, lasting two decades, over the conditions of economic development and the forces making for it. The debate was not between economists. It was between the practical entrepreneurs who founded and built businesses.

The names Yataro Iwasaki (1834-1885) and Eiichi Shibusawa (1840-1931) are known outside of Japan only to a few specialists. Yet their achievements were more spectacular than those of Rothschild, Morgan, Krupp, or Rockefeller.

Iwasaki founded and built the Mitsubishi group of industries—to this day the largest manufacturing complex in Japan and one of the world's largest and most successful business. Shibusawa founded and built more than 600 industrial companies during his 90 years of life. Between them, these two men founded something like two-thirds of Japan's enterprises in manufacturing and transportation. No other two men in any economy have had a similar impact.

For 20 years, till Iwasaki's early death at 51, these two men engaged in a public and often acrimonious debate. "Maximize profits," said Iwasaki. "Maximize talents," said Shibusawa. Today we know that both were right.

Japan was exceptional in the 19th century. She was the one nonwhite, non-Western country to become a modern economy. She was poorer than any of the white countries—probably poorer than any of the developing countries of today. She was an old country and densely populated.

She had silk to export and this paid for imports of manufactured goods and industrial raw materials. But she did not have new land to take under cultivation. She could not, therefore, as the new countries outside of Western Europe did, rely on imported capital. She could not have serviced such capital through exports of food or industrial raw materials.

What made Japan atypical for the 19th century makes her typical for today. Thus, the model of development today has to be Japan rather than the United States or Russia or, indeed, any of the white countries.

Japan accomplished development Iwasaki's way, that is, by attracting and mobilizing every penny of capital within the country. As a result, shortage of capital never impeded Japan's development, though she did not borrow abroad or depend on foreign investors.

Japan also walked Shibusawa's way and attracted, trained, and mobilized every ounce of human energy. She put to work on growth opportunities all the talent a gifted people could muster.

The Role of Venture Banks

The 19th century invented the venture banker whose task is to mobilize and multiply the financial resources of society and to switch them from less to more productive investments. It was the venture bank, as first embodied around 1850 in Paris, in the famous "Credit Mobilier," that industrialized Continental Europe. And in far-off Japan, without benefit of European theory, Iwasaki built his Mitsubishi empire around a major venture bank.

The one difference between those days and today is that we know much better how to organize development banks. In fact, the World Bank and its affiliate, the International Finance Corporation, started to encourage such banks all over the world in the 1950's. By now they have produced more development than all the aid programmes together, even though the amount of money invested in them from foreign sources is negligible.

These banks multiply the capital resources of a community. For every dollar of capital imported from abroad, they attract five additional dollars of domestic capital. Their own capital thus represents a multiplication by six of the imported dollars from abroad. Then, for every dollar they themselves invest in a venture out of their own capital, they raise another five dollars of investment capital from other sources in the community.

By the time such banks have finished financing a venture, every dollar of imported capital should have triggered the investment of another $30 of local capital. And then each of these $30 should trigger an additional very large amount of indirect investment from local sources—the way every dollar invested in automobile manufacturing leads to the investment of many more dollars in tire plants, roads, motels, service stations, and so on.

Perhaps the best example of development banking is a totally private "contract grower," ADELA, an international investment company started in 1964 by some 150 leading banks and manufacturing companies of the developed countries, as their vehicle for venture banking in, and the development of, Latin America.

Creating Human Competence

By investing less than $30 million of its own money, it mobilized almost half a billion of investment, most of it local. It created at least 25,000 jobs. And it mobilized for growth-opportunities a large number of entrepreneurs, managers, and technical people.

To speak of "lack" of capital is a euphemism for mismanagement of capital. The capital is there. But it is kept where it should not be—often locked up in economically marginal land ownership. Or it is not invested at all. Or it is employed productively but without any "multiplier" impact. One dollar does the work of one where it should do the work of one hundred.

Capital without people is sterile, but people can move mountains without capital. Development, therefore, requires rapid growth of human talents and opportunities to employ them. It requires leadership of a high order and also followers who can convert the leader's vision into reality.

In the 1950's the American aid programme invested a small sum, barely one million dollars, to form management associations and institutes throughout Latin America. Admittedly, management associations are unromantic. Nor did these do anything unusual. They held meetings, gave speeches and listened to them, ran courses, distributed literature and so on.

Yet the impact can hardly be exaggerated. That Latin America has managed to move forward during the last ten years, despite almost crushing deflationary pressures, is due largely to these programmes for the development of human energies and vision.

Out of them came, for instance, the upsurge of development in the Cauca Valley of Colombia, in and around the city of Cali. The young men who met in the courses of the new Colombian management association rapidly organized themselves to take responsibility for the local university, the Universidad del Valle. There they pushed a public health programme which, for the first time in the whole region, is systematically training and organizing villagers for public health.

They started a series of management courses—especially courses for the top management people—in which the most successful citizens of the area went to school, and in which each of their businesses was examined, diagnosed, and prescribed for by the whole group. Then they began to supply young and well-trained people to local governments.

Cali is still poor, and unemployment is still too high. But out of the work at the Universidad del Valle have come at least 30,000 jobs in the last ten years. More important, out of it has come an entirely different leadership for the entire community and for all major community activities.

Quite different is the approach taken by a small semiprivate group called the Development Advisory Service. Located at Harvard University and staffed mainly with Harvard economists, this small group—no more than 75—works in small teams as senior advisers and civil servants to developing nations from Pakistan to Indonesia, and from Liberia to Jamaica.

It decides itself what countries and projects it will work on so that it will get the most results from its small staff. It insists that the host country put its own best people on these projects. And it aims in all its projects at creating human competence and vision throughout a whole area.

There were never more than two dozen men from the Development Advisory Service in Pakistan, for instance. But largely through them, Pakistan's industrial output for more than a decade has grown at the rate of 15 per cent a year or more, and farm output at better than five per cent a year.

Corporations and the Farmer

The most effective agent of rapid human development in the economy has been the multinational corporation. In the developing countries, the multinational business should be less concerned with capital investment and ownership control than with developing management skills, focussed now especially on agriculture.

Farmers everywhere are highly receptive to monetary incentives. No one is more willing to do something new than the farmer, provided he sees a clear gain. But the farmer in the poor countries cannot take much risk. He knows that one crop failure or price drop for his harvest may mean total destruction for himself and his family.

What farmers have needed therefore —and what has proven successful wherever tried—is the contract growing of the new crops, the improved seeds, the better breeds. This, however, requires the skills and resources of a major corporation.

A food processor or food marketer works out the best way to grow the new crop or the new animal, provides the farmer with the necessary supplies—seeds, day-old chicks, feed, implements, fertilizer, and so on—and with the instructions on how to use them. He then guarantees the farmer a definite income at the end of the growing season, regardless of drought, of animal diseases, of market price.

In the developing countries where farmers lack the necessary skills, the risks of "agribusiness" have to be reinsured, obviously by government, at least for a few early years. But the risks can be identified and defined. And except for weather in a few places, they are not particularly great (though greater than a private business or a farm cooperative could take by itself at the start).

Such contract growing, in which the cultivation of crops is being used to change the capacities, aspirations, competence, self-confidence, and performance of the farmer—that is, of the majority in the poor nations—is perhaps the only way in which real progress can be made in the most dangerous areas of human erosion.

A Crucial Period

Development is no panacea. It is growth; and growth is never orderly. It is also change. And change in society and culture is dislocation.

The period during which a society takes off in sustained development is a most dangerous time. Economically speaking, development has become a success and an accomplished fact. But the leaders still act in terms of the traditional society instead of responding to the new reality.

At such a time there is a grave danger of social and political catastrophe. No country that has gone through the development process has been able so far to avoid this transition period and its dangers.

Development, in other words, is risky. But the alternative is infinitely riskier, one we can barely hope to survive. At least we can direct, lead, control and inspire development. And the evidence shows that, despite disappointments, the results have been rather impressive.

Indeed, measured quantitatively, economic growth has been a good deal greater than even the optimists of 1950 would have dared predict. Industrial production has been growing very fast indeed in a good many parts of the underdeveloped world.

Thus the urban areas of Latin America are no longer underdeveloped. They are still poor but they are growing vigorously. Major economies in Latin America—not only industrial Brazil but Mexico and the main cities of Colombia —may be close to, if not at, the "take-off" point and ready for rapid, self-propelled growth.

The three non-Communist Chinese communities—Hong Kong, Formosa, and Singapore—have shown tremendous capacity for rapid economic growth in the last 20 years, as have Pakistan and Iran in the past decade. Similarly, despite the persistence of mass poverty, India has today a sizable modern economy.

Most encouraging perhaps is that agricultural production and productivity in the 1960's are suddenly jumping ahead, just when everyone had given up hope that world hunger could be averted. This is the combined result of new seeds and varieties, more fertilizer, and better farm marketing stimulated by modest incentives to farmers.

A four per cent rise in food production and an even faster rise in yields per acre, such as has been reported for the decade of the 1960's, is actually unprecedentedly high in human history. If maintained, it could double food output by 1985 in large parts of the world.

The advances—especially the rapid spread of new and greatly more productive varieties of rice and wheat in Southeast Asia and India—have made some sceptical observers optimistic for the first time. But all of this, while encouraging, is not enough.

Development aid has resulted in the production of a lot of goods and a lot of jobs. But it has so far failed to produce the one essential result: the example of a new major growth economy. For that, it seems to me, a new vision is needed—one which relies less on foreign investment capital and more on the stimulation of local initiative and individual talent and energy.

ASIA AND AMERICA AT THE CROSSROADS

KENNETH T. YOUNG

Asia is entering a new era, says the author. The dangers of collapse or chaos seem over, largely because of the instinct for survival of Asian nationalism, as well as the American people's support of Asia during the past thirty years. What lies ahead is "the upward slope of modernization," a period of search for accommodation and for convergence beyond containment in new forms of regional cooperation. The American position which he recommends is one which will "avoid equally both the attempt to retain our leadership role and the impulse to disengage ourselves completely."

Author of a number of books about Asia, Kenneth T. Young has been President of the Asia Society since 1964. Previously he was Ambassador to Thailand and has served on many Government boards and delegations active in Asian affairs.

ASIA AND AMERICA have reached a crossroads. This does not necessarily mean violent collision, if we overhaul our policies in time, but it does mean a thorough reappraisal of the different routes which America and Asia will be taking. We need new signal lights and new maps to direct us away from the obsolete role of American overpresence in order to ensure Asia's preservation, and towards the relevant role of American partnership in Asia's renaissance.

I am not suggesting an exclusive Asia or a fortress America. But I am talking about the beginning of a new Asian era, and, concomitantly, the transformation of Asian-American relations.

Asia is at a watershed. The politics of the precipice is giving way to the politics of the slope. After thirty years of hanging precariously at the edge of the precipice, Asian nationalism has narrowly survived intact. We in the West

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probably made the vital difference in sustaining the will to avoid collapse or oblivion. Now that Asian countries, for the most part, have survived the ordeal of looking into the abyss, they are focussing on the upward slope of modernization.

At this crossroads, we are seeing the emergence of the Asian era. This means a renaissance of Asian prerogatives, a resumption of Asian styles, and a return to Asian realities. Western, especially American, primacy in Asian affairs is ending, as it should, because it has become as unnecessary as it is unsuitable.

The relevance of American leadership and of the exercise of American power across the Pacific, in our national interest or for mutual purposes, must align with these Asian realities, styles, and prerogatives. Ten years ago, U Thant noted that the key question for the United States was how to become "partners instead of patrons."

But, a decade later, we have not yet shifted from the obsolete role of leadership to a relevant role of partnership. A peculiar inertia and rigidity, rather than innovation and flexibility, seem to affect our Asian policy-making. Perhaps our huge Establishment has become muscle-bound. We have not yet recognized the implications of Asia's watershed between the politics of the precipice and of the slope.

I The Past Three Decades

In the first, our power, resources, and leadership were as decisive as they were desired in Asia and by the Asians themselves. The purposes of our massive involvement there were not in question, although its model and style often were. But style was not then the issue: cliff-hangers, like beggars, could not be choosy about their patrons. In the emerging politics of Asia, however, our style and model will become more relevant than our power and resources.

Let us, then, try to appraise this immense transformation, for it is crucial that we do so. Half of mankind is directly involved—two billion Asians now, and perhaps four billion in thirty years. Seven of the world's ten most powerful nations face each other in the Asian-Pacific arena. Humanity's stakes in the outcome are high.

For the past thirty years, the serious political problems of Asian nations have required us to exert a leadership role there. Before World War II, we had only the policy of benign rhetoric: the Open Door, the Washington Disarmament Conference, the Stimson Doctrine, and the evangelism of democracy, free enterprise, and our religions. The rhetoric made many friends for us, but did not give the Asians any really relevant direction or alter the course of Asian affairs in any significant way. At least, we were often followed as a worthy model of idealism, decency, and concern for national independence.

We have been relevant in terms of Asian power only since 1940. Since then, even our adversaries and critics have had to take account of America, just because we were there. We have been brought into many Asian crises, and into three Asian wars in my generation, basically because that was the decision or desire of Asian nationalists. They had no alternative. We filled the vacuum. Our power helped to save some countries from collapse, and our resources made their survival possible. We prevented Asia's domination by any large power—Japan, China, or Russia.

Above all, in the late 1940's and much of the 1950's, we aided Asia's successful struggle for national independence, except in the cases of China and Vietnam. In a word, America helped to "de-Europeanize" Asia, to end the long, rude era of European dominion over the world, and to assure the option of nationalism. The task which our Founding Fathers began in Philadelphia has been carried on, if not yet completed, by Asians and Americans working together in a thousand cities and towns across Asia.

We have provided billions of dollars and thousands of experts from American government, education, science, and industry to help to build modern Asian nations. We have thrown ourselves into this nation-building with all of that energy which seems so curious to foreigners. As a very wise Asian diplomat once told me:

> You Americans are extraordinary. You have the energy and the will to move mountains and you do. You astound us but you also frighten us because sometimes you do not know what direction to turn your energy towards or what consequences it will have.

From Japan to Afghanistan, our energy and will were, nevertheless, crucial. The past three decades were years of fear, of internal weaknesses, and of external threats. Prospects for progress were not apparent. Even the survival of many Asian countries was often in doubt. Perhaps we forget today that in the early 1950's, there were many dire predictions that various nations would collapse or disintegrate. As a significant example, no one was certain, in the early 1950's, that a demoralized and flattened Japan could recover soon.

Until after 1965, the mood in and concerning Asia was one of insecurity, anxiety, and that fatalism so characteristic of Asia's way of life and thinking. It was because of this dominion of fear on the edge of the precipice that we intervened so massively, though not always perfectly, in China, Korea, Japan, Vietnam, Indonesia, Thailand, Pakistan, and India, with economic or military resources.

If Southeast Asia had fallen off this precipice in the 1950's many feared that the new Japan, in particular, just emerging from the after-effects of the war, might go to pieces, and that Asia would fall prey to the first strong taker. Today, Myrdal's massive "Asian Drama" is a somewhat anachronistic hangover accurately reflecting the dim outlook for Southern Asia in the early 1960's, the time when he completed collection of his voluminous data, which have since been overtaken by a rapid upward transformation in many Asian countries.

The important lesson of the past thirty years is that Asian politics compelled Asian nationalist leaders to enlist our power in behalf of their frantic efforts to survive. We did not exercise our leadership or employ our resources over the objections of governments in Asia.

Rather, we were requested, invited, and even beseeched, sometimes despite our own better instincts, to take the primary role in Asia's interests. Of course, the United States government always had a choice, even if the crisis had to be met in a matter of hours or, sometimes, minutes. But the usual alternatives were either to deny Asian pleas, or to respond to their needs.

Facing brittle options with little margin for mistakes, American decision-makers did not, during the past two decades, have the luxury of playing for time. Presidents, unlike professors, could not take a chance that the likely contingency of failure might not become fact. That miscalculation would have doomed our role in Asia—and Asia itself.

Let me highlight this important and controversial appraisal of the American role in Asia during 1940-1969 by citing an official experience of my own, in 1955, concerning Vietnam. At one point, when the United States government recommended that France take over the total diplomatic, economic, and military support for Vietnam and Laos, and Cambodia as well, if necessary, the French, British, and other governments were shocked by this proposal, and urged us to make a maximum effort to save Southeast Asia. We went on to try.

That was in the days when all Asia was in a precarious balance, with little room for manoeuvre. The so-called domino theory had some relevance, however unsuitable a term it actually is. Asians believed in its validity. Many still do, in the sense that, balanced on a precipice, the collapse of any one in a group does endanger the survival of the others, and may lead to a general "engulfment," as Asians call it. Reaching for support at the edge of a precipice is not a matter of taste or an exercise in theory. It is reality. If your support withdraws, you and others near you may lose your grip and fall.

This psychology has been a very real factor in Asia. Let us not disregard it. An astute, experienced diplomat from a small Western country warned me most solemnly in Bangkok, during the summer of 1961, that fatalism was sweeping through Southeast Asia. Unless American leadership held on, the United States would be finished there and China would be the wave of the future.

American leadership and an American overpresence were acceptable and relevant during these past thirty years because our power and our wealth were desperately needed, while our model and style were relatively incidental. Indeed, the latter were, however, often rather difficult for many Asians to accept.

There was, on the part of many Americans, an idealistic, busybody tendency to be active in Asia in order to help—rightly or wrongly—to contain China and to start modernization. Some Americans even foolishly believed that they could do the job much better than anybody else. We "over-Americanized" the problem, as well as our role.

The American style was often to undertake some action quite unilaterally, or with only the most perfunctory consultation with Asian officials. We did not seek enough advice from the experts. We often acted on the basis of impulse, ignorance, and good intentions. Our prodigious energy and wealth, unfortunately, let us be precipitate, disproportionate, and wasteful when a lean, shrewd response would have done better, especially in Vietnam.

II The Turning Point in Asia, 1965-1966

Most Asians believe that Vietnam was the key factor in Asia and that if it had been dislodged, many would have been engulfed, or "unscrambled," as Lee Kuan Yew put it, in an avalanche with repercussions which could have affected even Japan and India drastically, and might have changed the balance of forces in the world at large.

Perhaps the Asians have been parochial in thus magnifying their own interests, but to most Asian nationalists, Vietnam has not been marginal, as Arthur Schlesinger and other American commentators claim. It has been crucial for Asian stakes in Asia.

In the mid-1960's, it was the pivot, the dividing line, for transforming the politics of Asia from the precipice to the upward slope, from despair to confidence. Indeed, in May of 1965, Lee Kuan Yew also warned:

> If the Communists are able to advance their frontiers to envelop South Vietnam, it will be only a matter of time before the same process of emasculation by military and political techniques will overtake the neighbouring countries.

The turning point in Asia was, indeed, towards the watershed. It is a period which should be carefully analyzed. I will cite only several instances. In late 1964, according to what some high-level Viet Cong defectors have told me, Hanoi decided to take over South Vietnam and to start an "insurrection" in Thailand. In early 1965, Peking signalled guerrilla warfare in Thailand. In mid-1965, South Vietnam seemed doomed, while the vice of a Peking-Hanoi–Phnom-Penh–Jakarta axis seemed imminent.

Indonesia moved away from the edge after the coup of September 30, but the stabilizing effect of the United States presence in the area should not be discounted. And, finally, inside China during 1965 and 1966, the Maoist revolution against the revolution began.

The breach between China and Russia then widened seemingly beyond repair and radically changed the international politics of Asia, adding, by 1969, not only the danger of Russian-Chinese collision in Northern Asia, but also the prospect of Russian-Chinese rivalry for the resources and favours of Southern Asia.

III The Asian Renaissance and America's Changing Role

Let us now appraise current developments in Asia. The political development and economic progress which most Asian countries have enjoyed since 1965 have generated a contagion of confidence in place of the dominion of fear. Buoyancy has overtaken fatalism. The *New York Times Annual Review,* for instance, moved from such phrases as "Asia's rocky road" and "depressing over-all picture" in January 1965 to "much economic progress" four years later.

In my trips to India, Thailand, Cambodia, Indonesia, Vietnam, the Philippines, Hong Kong, Korea, and Japan in 1968, I felt and saw this confident Asian renaissance of prerogatives, realities, and styles. Asia and America have reached a crossroads because the Asians at last have a chance to be Asian on their own terms.

They are beginning to exert control on their own continent. Its fate will no longer wait on London or Paris, or on Moscow or Washington. This new Asian era means the beginning of the Asian organization of Asia, however long that takes. In their mood of buoyancy and confidence, despite unsettled dangers and dilemmas, Asians insist on their own self-reliance and initiative. They are allergic to overdependence on foreigners and to the visible overpresence of foreigners in Asian countries.

Yet, I do not mean to assert that this transition from fear to hope will take place all at once. It may require a decade or more. Meanwhile, America will have a role to play, but it will have to become relevant to the return to basic Asian realities—at least four of them: the art of synthesis, a search for solidarity, stress on pragmatism, and plurality in diplomacy.

Cultural Synthesis

Asia's age-old talent for cultural synthesis without loss of political identity is the fundamental Asian reality that is re-emerging in this decade. Asian cultures have always demonstrated a stern and hardy strain of assimilation which transforms without being overwhelmed and bends without breaking.

Asia's infinite capacity to absorb and adapt outside influences in religion, the arts, politics, and commerce reflects the instinct for seeking flexible accommodation of opposites to achieve some exchange of values, instead of insisting on the rigid confrontation of divergent positions, which accomplishes nothing in the end, or endangers the very survival of the basic cultures.

This capacity to assimilate will become increasingly conspicuous and will probably be effective in the integration of cultural traditions and the needs of modernization. Only people who live in Asia will have the authentic instincts and interior views to make this synthesis.

Search for Asian Solidarity

A return to the second reality of Asia —the goal of solidarity and harmony— will undoubtedly be stressed. That has been the thrust of Asia's religions and social patterns for centuries. Today, one hears Asian diplomats and scholars, for example, using that word, "solidarity," more and more frequently for establishing national identity and promoting regional cohesiveness. Regional co-operation is a prospective reality in Asia today.

If the search for regional solidarity turns out to be successful, it could have vital significance for the world, because regional co-operation among the Asians is probably the only alternative for removing Asia's abnormalities—which are, primarily, the war in Southeast Asia, China's isolation, and America's overpresence.

Pragmatism

The third reality in Asia is the trend toward pragmatism, reflecting a traditional Asian cast of mind. Asian managers, scholars, diplomats, and planners are becoming disenchanted with ideologies, whether of the left or of the right. They now prefer realism, practicality, efficiency, and performance, on Asian terms, even though social violence, overpopulation, and poverty will obstruct the road ahead. Asia's principal difficulty is the painful search for a new political synthesis to manage modernization. The politics of the slope is more and more inclined towards authority and continuity rather than towards fluctuating parties.

Plural Diplomacy

The human reality of Asia for the 1970's is the incredible transformation of its people. The majority of Asia's massive population is young. It is also becoming urban. Asian countries are urbanizing with unbelievable speed. City boys, not farm hands, will decide the politics of the slope and the route from the crossroads.

The organization of Asia is now the key question for most Asian leaders. Plural diplomacy, traditional in Asia, is their answer. They reject domination by the superpowers, although the United States and the Soviet Union will have to help to relieve Asia's dangerous tensions.

It is a waste of time for outsiders, moreover, to urge Japan, India, or China to take over the leadership role in Asia. The other nations will not have it. Middle-sized Asian nations are the efficient units for solidifying Asia because they can make the new synthesis more easily and because they need the solidarity more acutely than the larger countries. Accordingly, a reciprocal combination of the large and small nations of Asia is the only realistic route to development and security directed by Asians in Asian regional groupings.

IV Asian Convergence Beyond Containment

In short, the really challenging new perspective for all of us at the crossroads is that an Asian policy has become feasible for the first time in centuries. It is now practicable to conceive of programmes and institutions on a wide territorial and psychological basis. For one thing, a sense of regional identity is growing in Asia. For another, new techniques in agriculture, industry, tourism, communications, and cultural exchange make Asian policy feasible.

It is not being euphoric or rhetorical to suggest that a modern Asian-Pacific area of civilization is slowly crystallizing. Its formation could have extraordinarily significant results for all of us. It could (1) promote the vital upward climb of individual countries, (2) help to settle disputes like the one taking place in Vietnam, (3) prevent the domination of Asia by a single powerful nation, (4) provide Mainland China with an attractive alternative, and (5) induce the eventual contraction of American overpresence in Asia.

These goals suggest what I call "Asian convergence beyond containment." A trend towards reconciliation and convergence is evolving in Asia, despite, or perhaps because of, many disputes and rivalries. The strong desire to find Asian forms for harmonizing differences will predominate however. The realities of Asia, furthermore. will influence younger leaders in China, North Korea, and North Vietnam towards pragmatic convergence with the rest of Asia, after the intractable Mao Tse-tung, Ho Chi Minh, and Kim Il Sung have disappeared.

V The New Relevance of America

Finally, let us appraise the American role at this crossroads. For us, the return to the realities of Asia means a major readjustment of our presence there. The components of leadership—power, resources, and style—need to be remixed.

The most extraordinary new feature is that the Asian perspective is becoming more like ours, while, paradoxically, ours is becoming even more different from theirs. This combination of like and unlike, of correspondence and divergence, characterizes the crossroads of American and Asian directions. The new signals and new maps that we devise will be uniquely meaningful for Asia.

Ambassador Sudjatmoko of Indonesia has recently summed up this new relevance of America:

> It has been customary for Europeans and Asians with their longer histories to look rather condescendingly at America. But as more and more the future rather than the past will determine the quality of the present, the tables are being turned... In the light of these rapid and powerful changes that are now part of the lives of all of us, history... can become an albatross around our necks preventing us from necessary adjustment and growth...The question whether the world of tomorrow will be a livable place where man...will have a better chance to fulfil his potential for happiness, will very much—though of course not solely—depend on how the people in the United States will answer the fundamental questions that they themselves as well as others are now raising.

A spectre is haunting Asia, not the spectre of Chinese attack, but the spectre of American retreat in disinterest. Across the Pacific, the key question preoccupying, even obsessing, Asian officials and intellectuals is whether America will abandon Asia to China, or instead work out a new partnership to bring about a general reconciliation for convergence beyond containment. However difficult Maoist or neo-Maoist leadership may be, ours must not become doubtful or irrelevant at this critical time of transition.

To remove Asia's spectre, we need to show firm posture, new priority, and low pressure. Our most effective choice would be to avoid equally both the attempt to retain our leadership role and the impulse to disengage ourselves completely. Above all, this means resetting the American clock from the instant alarm to the long watch.

This means gradually contracting our American overpresence; as Asian initiative and power slowly mature to handle security threats. Our collection of treaty commitments and base-facilities in East Asia need to be either selectively consolidated and modernized or dismantled. An Asian counter balance is better than an American overpresence to restrain Chinese power and release Chinese diplomacy. In any event, whatever subversive or nuclear threats may come from intransigent Asian leaders, our nuclear power should be nationalized in areas or vehicles under sovereign American jurisdiction, not subject to the natural and healthy Asian rejection of dependence on aliens.

Asia's needs for the "slow climb towards better living conditions," to use the phrase of the recent Perkins Report to the Agency for International Development (AID), will also require us to deemphasize military hardware and to increase the right kind of political, social, and economic support for nation-building and region-building.

This means a large foreign-aid programme and better technical assistance, in both the public and the private sectors. It also means channelling much more of our support through Asian institutions like the Asian Development Bank and the Mekong Committee.

Asian efforts and our adjustment to Asian realities will be much more effective, and less painful, if we get to the root of the matter by de-Westernizing and "Asianizing" scholarship, research, and planning concerning elusive social change in Asia, as Myrdal has so rightly urged. This has already begun, to some extent, for the study of Asia is no longer the exclusive preserve of Paris or London, or of Harvard or Berkeley, as Asian centres from Kyoto to Kabul focus more on Asia and less on the West.

Americans can really change the model and set a new style by helping to terminate what so many Asians call "academic imperialism." Asian scholars and planners should be encouraged by governments and private institutions to take the initiative in programming research, and in establishing the Asian values most relevant for success on Asian terms. The Southeast Asia Development Advisory Group of the Asia Society, of which I am chairman, is one agency modestly trying to help to "Asianize" research and development in Southeast Asia.

We also need to improve our relationships with various countries, in correspondence with a return to the realities of Asia. Indeed, unless we do so, our position will deteriorate, and our national interests may suffer. Already, we are experiencing an increase of doubt and displeasure about American policies in many Asian countries.

We think first of Vietnam. We could use more imagination and initiative in finding ways to "Vietnamize" the struggle and to "Asianize" a settlement. Without waiting for the diplomatic action of the talks, we could begin to turn over programmes and operations to the Vietnamese by a joint schedule. This would permit us to begin to withdraw American civilians and military personnel now. We should have more confidence that the Vietnamese can now take over much more of the diplomatic, political, and military operations.

Time and effort will also be needed for strengthening the large political majority of the Vietnamese centre in order to reduce Vietnam's complex political divisiveness. For the settlement itself, if there ever is to be one, we must engage the Asians in trying to quarantine the historic aggressiveness of some Vietnamese, now represented by the Communist leadership in Hanoi, against Vietnam's Southeast Asian neighbours. As a future multilateral solution, I favour a Mekong Federation of Thailand, Laos, Cambodia, and both Vietnams, to turn the enormous potential of the Mekong River watershed into the incentive for turning war into peace.

But our most urgent single task in East Asia is to circumvent a major misunderstanding or collision with Japan. It is alarming that the questions of Okinawa, American bases, and the Security Treaty have become such shattering issues in Japan and in Japanese-American relations. It is also disturbing that the Japanese are so shocked to find such ignorance and complacency about these matters, not only in the American public, but also in high places here. We need to develop more sensitivity toward the brutal crunch which Japan is confronting.

A Japanese professor told me last fall that Japan is a country with muscle, but without a soul. Until the Japanese crystallize a new system of values to guide them on the proper role to play in the transformation of Asia, he hoped that the United States would not press Japan to become the counterweight to China, as a substitute for our political and military leadership in Asia. Asia will, indeed, be watching to see how Japanese-American relations evolve, for they will be the touchstone of our relevance in Asia in the 1970's, far more than our China policy will be.

I do not wish to suggest that the quarter of mankind living in Mainland China is insignificant. The re-entry of China into a workable relationship with her Asian neighbours, as well as with the Soviet Union and the United States, may well become the world's most crucial political challenge during the rest of this century. To bring about that re-entry will mean giving up our fantasies about China and seeking its realities.

It is an illusion to think that ostracizing or ignoring China will work. It is also a fantasy to expect that embracing China with all sorts of inducements, or magnifying China's menace in order to justify an ABM system, will get any convergence with China beyond containment.

We must first understand the excruciating experience that the Chinese are still going through, as they see so many domestic and external hurdles piling up in their way. It will take a long period of time before China is ready to meet us or to accept a relative place in Asia.

Meanwhile, we need to cool our rhetoric and to keep from being swept into the Russian current against China. In the titanic struggle which will occur if Russia attempts against China the same tactics which she used in Czechoslovakia, we may be the only available peacemaker. Let us, therefore, eliminate any obstacles to being in readiness to resume a variety of relationships with Mainland China if the valid opportunity should ever occur.

In sum, our style and model will be more relevant than our power and resources in promoting Asia's convergence, improving our relations with Japan, stabilizing Southeast Asia, or facilitating China's difficult re-entry to the community of nations. Finding the relevant answers and adjustments here at home, however, will tax American ingenuity and understanding.

VI Resemblances, Differences, and Asian-American Relations

For the first time since Americans came into contact with Asia in the 1780's, America and Asia resemble each other, in some ways, inside and out. We share the same critical social problems in much the same manner and degree.

Student rebellion, monster cities, technological tyranny, obsolete politics, and the deep disorders of overrapid social change afflict us all, as Eric Fromm has so tellingly illuminated in his "Revolution of Hope." For a change, Asian professors and planners may draw on experience in their countries to help us with our problems, instead of the other way round, as it has been in the past thirty years. We should listen, for we have something to learn.

We should be ready to receive, in order to change the patron-client relationship into a relevant partnership. How we can both find alternatives to police brutality and educational obsolescence on our campuses, for instance, is of enormous significance in Asia, where the educated man has long held highest esteem and office, both by cultural tradition and by political mandate. Today, Asia's ascent depends on him.

In another instance, the development of new towns and intermediate cities between the helplessness of the hamlet and the hopelessness of the ghetto may be an equally relevant answer on both sides of the Pacific. A Filipino professor's recent analysis of Manila's political handicaps could easily have substituted the name of Minneapolis, to match John Fisher's article on the cities in the April *Harper's.*

Lest we leave my version of the crossroads with undue hope, let me conclude with a warning about widening differences. In many ways, the gap between us and the rest of the world is spreading. This phenomenon is in critical need of our attention because it could negate the benefits of growing correspondence.

Ours is the first society, for better or for worse, to move into the technetronic age, to use Brzezinski's term. The lifestyle of a postindustrial America, or post-Marxian America, of automation, computers, and environmental control, may so outrace the Asian climb that our leadership, our resources, and our model will be over the slope and out of sight, almost perpetually irrelevant and meaningless to others. Perhaps the same gap will emerge between Japan and China. This is a staggering response to Ambassador Sudjatmoko's pertinent point about our answers for a livable world.

The crucial question is how to steer Asia and America, both going in similar and different directions at once, through the crossroads of instant change over a long time. Relevant partnership in that undertaking means pointing to some splendour of vision, rather than just providing a storehouse of plenty, as Sir Denis Brogan once suggested in assessing American leadership abroad. Common purpose supersedes national interest.

To find an Asian-American partnership in keeping with the future, we may have to return to the wisdom of our tradition as well as that of Asia. I can think of no more appropriate words than those of Justice Holmes to guide us forward: "The best service that we can do for our country and ourselves," he once said, "is to see as far as one may, to feel the great forces that are behind every detail, to hammer out as compact and solid a piece of work as one can, . . . and to leave it unadvertised."

An American who actually practised that philosophy in Asia was Professor Jens Westengard of Harvard Law School, who served in Bangkok from 1908 to 1915, as General Adviser to the King and His Majesty's Government, with immense influence on all matters—and who set an excellent model and a style to follow today in his description of his own way:

> It is the highest good I have done here if I never know whether my remarks had anything to do with accomplishing the desired results. It is often the case that the world does not know who really brought about the really great things. The best things I have done are not known, sometimes not even to myself, and I can do most good by retiring as far as possible from the appearance of driving the machine.

There is an answer to how we can handle protest and change in the United States and to how we can relate to Asia's comparable transition.

THE AUTHORITY CRISIS IN CHINESE POLITICS

LUCIAN W. PYE

Traditional Chinese culture placed great emphasis on ideology, hierarchy, and authority, writes Lucian W. Pye, and these concepts, though under new pressures, continue to influence developments in Maoist China. Other students of China may dispute the author's analysis, which he develops in his latest book, "The Spirit of Chinese Politics: A Psychocultural Study" (1968). It is offered here as a provocative contribution by a leading scholar.

Born in China and educated in the United States, Professor Pye is a member of the political science faculty at the Massachusetts Institute of Technology. His books include "Politics, Personality, and Nation-Building" and "Self-Government in Modernizing Nations." His monograph—published here in abridged form—was originally presented at a meeting of The University of Chicago Centre for Policy Studies and subsequently published by the Centre. No part of it may be reproduced without written consent of the author and the Centre.

THE VERY HUGENESS of China makes it seem an implausible nation. It does not fit into any of the normal categories of states.

Only a little over a hundred years ago, to aspire to rule 750,000,000 people would be the equivalent of a dream of world government. To carry on government on such a scale as this staggers the imagination.

But to want to rule more intensely, more completely than has any other government in history boggles the imagination and makes one wonder what the limits of the possible are.

Since Chinese realities do so strain the imagination, it is not surprising that we sometimes fall back upon our private fantasies as we seek to gain a better understanding of the forces motivating the Chinese. In this sense we can say that everyone has to conjure up his own version of China.

Historically there have been different national images of China. There is the Russian version of today: a picture of an

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irresponsible power, a wrecker of international socialism, a source of danger, and a problem to be suppressed. The Indian version has changed the image of China as a brother to China as a foe and a major international threat. The Pakistan version holds that anyone who has attacked India can't be all bad.

The official American view is more complex. We have vacillated in our perceptions, and we have changed. We are not prepared to accept the current Soviet view of China, but we still see that country as a source of danger to Asia.

Beyond the official American version there is the variety of American private views. These versions contain much ambivalence, for, aside perhaps from Japan, Americans may have stronger and more complex emotions about China than do any other people in the world.

For scholars too a variety of Chinas exist. These stem from the differences in their initial introductions to the subject of China. For some scholars this introduction came through exposure to Chinese history, to traditional Chinese culture, to Chinese literature. For others it came through exposure to the more contemporary scene and to more immediate problems, such as a concern with the ideology of Communism.

Out of this variety of international and American perceptions of China arises a similarly wide variety of policy attitudes. Each country tends to have a unique set of policies towards China, and since no two countries see China in quite the same light, no two have identical policies. India's policy is different from Japan's, Japan's is different from Britain's, Britain's is different from that of France.

China as a Modernizing System

At this stage I must identify my personal biases and admit that I feel we might be able to reduce some of the confusion over Chinese realities if we were to try to treat China as a transitional society experiencing all the problems of modernization common to the countries of Africa and Asia which are now breaking out of their traditional orders.

We have not tended so to treat China because China's transitional stage began a bit earlier than did the countries we now consider the underdeveloped world. In the 1910's and 1920's China began experiencing most of the problems we now recognize as normal to newly emerging states. China had this developmental problem before it was fashionable to recognize that there was such a phenomenon as a transitional political system.

The China which, after the fall of the imperial system, tried to set up republican institutions and conduct its affairs in the early years of the 1920's on a constitutional basis, was really not too different from today's transitional societies. But at that time people had little appreciation of all the problems that go into the making of a modern nation-state.

At that time colonialism gave the semblances of order and stability to the rest of Asia. Japan, which was in a comparable stage, is not a fair comparison because, as we now know, Japan had a unique capacity to adapt to the modern world. As a result, China received a rather bad press in those days.

Yet if we look at the warlord period

in retrospect and compare the processes in China then with what goes on in transitional societies of today, we may have to revise our estimates of China's performance.

Unique and Shared Values

In the general context of the historical processes of modernization, many of China's problems are not particularly distinctive. From this vantage point, she fits into a comprehensible category, and *some* of what we perceive as strangenesses peculiar to the Chinese fall away.

Yet even when this is done we are still left with the realization that in some respects the Chinese experience has been distinctive. It then becomes important to isolate those dimensions of the modernization process that are uniquely Chinese.

One of the first factors we encounter is the extraordinary Chinese sense of historical greatness. The Chinese know that they are not just a culture. Historically their civilization has been a recognized alternative to Western civilization.

To some extent this feeling of greatness is related to what is often called the "Middle Kingdom syndrome," the feeling of being the centre of the world. But it goes even deeper, for it involves a sense of race and of biological linkage to one's ancestors which gives the Chinese a powerful sense of continuity.

As a consequence of these feelings the Chinese, when confronted with the modern world, have escaped some of the problems other transitional peoples encountered. Most significantly, they have not had comparable problems of confusion over who they are and what they should be.

Unlike so many of the other transitional societies, the Chinese have not had an identity crisis: one does not hear among the Chinese the sense of rootlessness that is heard in the discussions of, say, Indian intellectuals.

In the confrontation between Chinese civilization and the West some of the intensity of the conflict has sprung not from the contrast of values, but from the actual sharing of values. The Chinese were distressed not because the West was so different, but rather because it seemed able to excel in precisely those spheres which the Chinese most valued.

First, Chinese civilization recognized and exalted above all the art of government. Government was their highest form of culture, and the art of government was what the Chinese thought set them above all others.

Their Confucian doctrines, and their philosophy, their way of life, all tended to set government in the centre of human activities. Much of the shock of the Western impact lay in the Chinese discovery of their own political impotence in the face of the West's capacity for political mobilization.

Even the results of what the Chinese considered to be their clever arts of stratagem, such as bottling up the West in the Treaty Ports, tended to backfire, for in these concessions the foreigners soon demonstrated a surprising capacity for public administration.

Secondly—a fact that is just as important but perhaps less explicitly recognized—historically the Chinese have appreciated the importance of a high standard of living for a reasonable degree of civilization. From earliest times it was their superior standard of living that set the Chinese off from the barbarians and the nomads. When the Chinese were thus confronted with both the power and wealth of the West they were profoundly disturbed because they recognized that they were being challenged according to values they respected.

In this respect the Western impact on China was not the same as it was on many traditional societies. In other cultures it was possible for people to insist that their values were different from Western values, and hence to avoid to some degree the issues of relative superiority.

In many societies, for example, the people will extol their respect for the realm of the spirit and the domain of religion while suggesting that the West in its materialism is inferior in such matters.

It would be somewhat absurd for the pragmatic and worldly Chinese to pretend towards spirituality. They have long known what national development is all about, but in the modern era they have had profound difficulties in ordering their public life in such manner as to achieve effective political development.

Reliance on Ideology

What I would like to do is explore some of these difficulties and see if they cannot be isolated. I must first make some sweeping generalizations about the ways in which the Chinese have conducted their politics and the spirit in which they have carried out public affairs, but I trust the reader will know that I appreciate the need for qualification of these generalizations, since in a limited space I can only touch on the gross dimensions of the subject.

I will begin with the simple observation that in Chinese politics there has been an extraordinary reliance upon ideology. Whether historically or in contemporary times the Chinese urge has been towards underpinning action with a distinct ideology, with particular virtue being attached to ideology itself. To be without an ideology is to be profoundly uncomfortable.

This stress on ideology was as strong in Confucian China as it is in Maoist China. The common assumption of Chinese and foreigners alike has been that if one is to understand Chinese politics, one has to begin with the study of the formal ideology of the moment.

Now I submit that it is strange that scholars dealing with Chinese politics should have been willing to focus so completely on the realm of ideology. Why have we not tried to penetrate further below the surface to ask why the Chinese, who are so pragmatic and such realists, have felt profoundly uncomfortable if their polity was not dressed up in some manner of ideological clothing. Why this need for formalism? What does this need really represent and satisfy? This seems to me to be the first clue we should investigate in our search for a better understanding of Chinese modernization.

Concern for Hierarchy

A second striking characteristic of both traditional and modern China has been its strong hierarchical quality in politics. Chinese politics have been monolithic in structure, with a strong tendency to rank everyone as either superiors or inferiors.

This was true of the traditional bureaucracy, and it has been true in every political system created since. Few possibilities have been created for establishing a more open form of politics based on competing interest groups. The great anxiety and discomfort of the warlord period existed precisely because hierarchy was missing.

Any tendency towards fragmentation is disturbing for the Chinese. Consequently they have always turned towards the creation of yet another monolithic form of authority—whether that of the Kuomintang or of the Chinese Communists.

This concern for hierarchy has made it impossible for political actors to treat each other as at least *pro forma* equals. Instead, they are constantly striving to determine who deserves superior rank and who should be assigned the inferior.

But with the need for ranking, there is also a profound distaste for open competition. Hence the stage is set for resentment. This hypersensitivity to relative rank has complicated not only Chinese domestic politics but China's relations with foreign powers.

The history of Chinese relations with other countries and other politics has been a record of uneasy relationships. Time after time, China has started off regarding a country as a close and friendly ally and associate, only to have this feeling break down and become one of intense hostility. This was true of traditional China, of Kuomintang China, and now it is true of Communist China. Relations with England, Japan, America, India, and Russia have all gone through this same pattern.

The Authority Crisis

This pattern suggests something about a feeling towards authority which seems to be very strong in Chinese culture. The expectation seems to be that authority should be monopolistic, diffuse, and capable of handling a wide range of matters without interference.

Authority in this sense is supposed to be total, not divided. Any sign that authority must compete for acceptance suggests weakness to the Chinese.

In Chinese politics, authority is supposed to be still more complete, and there have been fewer possibilities for a division of authority. Where it was necessary to have more than one authority, it became a matter of accommodation so that each division could act as though it were absolute. The authority of the Emperor was total; the authority of the Mandarin was total; the authority of the father was total. Each was total within its realm.

From these generalizations about the Chinese need for ideology, concern for hierarchy, and belief in the absoluteness of authority, we can draw the conclusion that in Chinese politics the issue of authority has been peculiarly acute.

I would go further and suggest that the basic problem of the Chinese in the modernization process has been a crisis of *authority*.

This crisis has dominated Chinese politics in the same manner that crises of *identity* have plagued other developing societies.

The breakdown of the traditional

system really meant a widespread breakdown of authority throughout Chinese society. For the last half-century the Chinese have been trying to establish legitimate authority at all levels of their society. In a sense, they have had a problem of broken fathers and they are engaged in a search for new fathers.

The revolt of the Chinese in the 1920's and the spirit of the Chinese renaissance was not one of seeking separation from fathers, but rather of striving to recreate stronger fathers—a search for strong father images who can provide a sense of authority for the people.

This is essentially the problem that we still see in the Chinese system today: where does the division of authority lie between the party ideologue and the technician? The separation and division into separate realms and spheres of responsibility is not easily accepted in this culture.

Another prevailing theme we can observe as having complicated the modernization process in China is the fear of disorder that seems to run through the society, a feeling that when there is no clear pattern of authority then things are seriously out of kilter.

Mao and the Communists have been able to use this fear of disorder with striking boldness; they have been willing to provoke disorder because they are confident that they can handle disorder. They have been prepared to challenge where others have backed down because of horror in the face of disorder and confusion.

In a sense, the Communists have been able to develop a higher threshold of tolerance for disorder. But in the end they too are concerned with establishing order.

Emotional Politics

This concern brings us to the subject of emotionalism in politics. The response to this deliberate act of producing disorder seems to suggest uncontrolled emotions, and lurking dangers behind the emotions. When we think about the Chinese and modern politics, about Chinese political awakening and activism, one senses the political awakening as an awakening in a fit of anger.

To the Chinese, to be a political activist is to be an angry person, someone with the capacity to hate, to recognize the foe. The result is that a great deal of bitterness has run through Chinese politics.

The people who go about the sober task of building the nation are not seen as political activists; this task is somehow not in the realm of politics. Politics is emotional involvement. And underlying this identification of politics with emotionalism is a strong feeling of the self as having been mistreated and a willingness to acknowledge this feeling, to play upon it and to spell it out in endless detail.

Apparently in modern times politics have become a form of activity in which Chinese have given legitimacy to the expression of more intense and more hostile emotions than are permitted in any other field of social life. We would hypothesize further and suggest that their manifest behaviour appears to be symptomatic of basic reactions towards a breakdown of order and authority in Chinese life.

This is likely to be the case because in traditional Chinese culture there was tremendous stress upon the concept of authority both within the family and throughout the society. In a sense government and family conspired together to insure that young Chinese were overwhelmingly impressed with the sacredness of authority.

All these pressures of socialization converged to teach the young Chinese that it would be profoundly dangerous to display any sign of aggression towards anyone, but particularly towards any one with power and authority.

A culture so concerned with etiquette, with form, with the divorcement of emotion from action, with control and self-discipline, with the capacity to handle oneself in a stylized manner, allowed for no formal or informal acts of aggression. In Chinese culture aggression was not merely suppressed, but repression occurred. Indeed, much of the psychic strength of Chinese culture was derived from the ways in which the force of repressed aggression was channelized and sublimated into carrying on greater tasks in the society.

As some people speculate that Western society by sublimating the sexual libido has had powerful effects on the forms of political and social aggression, so we may speculate that in the Chinese culture the repression of aggressive instincts made for a system that produced personalities extraordinarily committed to order and with capacities for work, productiveness, and effectiveness.

Passion vs. Ritual

Under the tensions of modernizing China, however, the highly ritualized mechanisms of control in the traditional society lost their capacities to discipline all aspects of Chinese life. The result, in political form, has become a tug of war between, on the one hand, the need to tap the appeal to emotionalism, and on the other, the continuing need to repress emotion by ritual.

The conflict arises because a culture that in modern times has called forth all kinds of emotions has been superimposed over a culture that once regulated emotions between people in a highly ritualistic form.

Thus developed the struggle between passion and ritual, between emotion and formalism, the struggle between red and expert, between the ideologue and the calculator. This is the struggle which now dominates Chinese politics and has become more intense in the latter days of Mao's life as he begins to see that in a situation which calls for emotion the response of the Chinese tends often to be ritualized.

Mao feels that he must mobilize the passion of his people. But this need can lead to ritualization and thus to a situation where passion and ritual will again be out of kilter. The dilemma is that the two are not easily reassembled. This is the dilemma that the Chinese are now facing as they try to have both a spiritual revival and new national plans for economic development.

From this analysis Mao's actions become more understandable. The appeal for a "Cultural Revolution" was begun in 1966, and it brought forth more-or-less ritualized responses. At the time the system was becoming more stabilized in many ways. Cadres were learning how to handle various campaigns and drives in routinized ways. Yet this very drift towards normalcy was a threat to Mao.

At this point Mao displayed his revolutionary spirit by his willingness to churn up a certain amount of disorder in order to frighten people back into their vested interests and especially make the lower cadres recognize what they owe to the system. At the same time in his boldness in facing the conventional Chinese fears of anarchy, Mao frightened those who might challenge him.

It is proper to assume that the Cultural Revolution will represent a watershed in Communist China's political development just as the Great Leap of 1958 was a watershed in China's economic development efforts.

In a sense the Great Leap was an attempt by the Chinese Communists to test their capabilities and their credibility in bringing about rapid economic change. When this effort failed the regime lost a certain quality of magic that it once had—the magic that suggested that it knew how to solve problems in ways that defied other people's calculations.

After the failure of the Great Leap the regime had to go back to the same processes of development sought in all other transitional societies. It had to go back to the process of many gradual accretions over time.

The Loss of Mystique

Now with the Cultural Revolution there has been on the political side a similar loss of mystique, as it is clear that the system that once seemed to be able to solve all kinds of organizational and mobilization problems does not have magic. If China is to build an effective society and become an effective state it will have to go through the same building processes that are necessary in all other societies. That is to say, the Chinese no longer have any shortcuts to the process of institutionalization and political development.

What does this suggest then for the future? It does not suggest an end of Communism. For as has already been indicated the importance of authority is much too strong in this system to predicate the possibility of a serious revolt in that sense.

What is most likely is a process of accommodation which will take the form of numerous adjustments to Chinese realities. In spite of strong desires of the Chinese to have only a single, monolithic form of authority over them, they will have to settle for considerably less than a tightly centralized system.

The consequence of such adjustments will be a greater sense of maturity towards authority, a greater appreciation of the fact that excessive control can be self-defeating. Such a dispersion of responsibility will result in the system achieving a new level of equilibrium in which the intensity of activities is not geared primarily to the commands of authority but to the dictates of reality. This will not come immediately, but the trend in that direction seems to be inevitable.

One of the consequences of the Great Leap was a movement towards somewhat more rational and pragmatic economic policies. The same process will probably operate now on the political level.

No doubt the leaders of the post-Cultural Revolution China will deny that there are to be any significant changes, and their language of pronouncements will probably be as extreme as ever. But there will have to be accommodation, for China cannot long afford the luxury of not facing up to its huge problems.

Gradually the Chinese will have to make up for the errors of the last few years, and no doubt there will be reactions against much that was readily accepted during that time. Specifically there will probably be a reaction against the rather unbalanced patterns of development and investment.

For example, the Chinese have invested very heavily in developing a nuclear capability although it is not clear that nuclear capability will give it any greater sense of security than it had before. Yet with this technological investment, it has failed to strengthen its conventional forces to match its nuclear pretentions.

In the same sense there has been an exaggerated pattern of investments in heavy industry and a refusal to exploit China's marginal advantages in light consumer goods. The regime has passed up numerous opportunities to forge ahead economically because of certain preferred choices in terms of the kind of society it wished to develop. In the future the Chinese will have to be more sober in utilizing potential advantages.

Need for Trained Manpower

An even more serious problem is the need for the Chinese to invest far more than they have in producing the intellectual and technical skills essential to a modern society. Over the last few years Mao's anti-intellectualism and the demands that people be more red than expert has meant that the Chinese have had to depend excessively upon an earlier generation of technically trained people and not expand the numbers.

In the present-day world, only in Communist China is it possible to close down universities and high schools for indefinite periods of time. Yet there are few societies in the world more urgently in need of rational and technically competent manpower. In time the Chinese will have to realize that the authority of rationality is far more potent than the authority of emotionalism and ideology.

What does all this mean with respect to American policy when we look ahead? The weakening of Communist solidarity and the re-emergence of nationalism have confirmed the prospect that historical forces may be working for the evolution of a more benign and accommodating world. This prospect has further encouraged the hope that historical forces may also be working within China to bring about a more moderate system.

It is the prospect of precisely such a dramatic development in China which inspires a greater American readiness to set the stage for more direct contacts with the Chinese so that we can convey our support for the moderate elements. Yet the difficulty is that although such a historical trend may unfold in time, there is exceedingly little that we can do to speed up history. It would be unwise for us to expect that we can directly influence domestic Chinese developments.

What we can do is to recognize that there are tremendous pressures within China to look outward in time and try to find contacts with the modern world. It is these pressures which will help create in Chinese culture new attitudes towards authority more compatible with the organization of modern society.

Instead of feeling that all of society must be organized under a monolithic pattern of control, the Chinese will have to accept the responsibilities of freedom and more diversified authority. Once they have begun to resolve their authority crisis, they will presumably find it easier to live in a pluralistic world.

The Future of Asia

In the meantime, U.S. policy must look beyond merely the hope of establishing better contacts with China to the larger issue of how China is going to fit into the general balance of power in Asia. We should be looking beyond the Vietnam war and planning for a post-containment period in Asia.

To prepare for that time we must seek answers to such questions as: What do we mean when we say that we are prepared to respect the legitimate interests of China within Asia? What form do these legitimate interests take? What should be the main outlines of a post-containment Asia? What kind of balance of power is to be achieved in Asia as Japan, India and Southeast Asia advance economically and as Southeast Asia gains a greater sense of self-confidence?

It is essential that both we and the Chinese be as realistic and farsighted as possible in trying to envisage the future of Asia. In the short run we can expect the Chinese to vacillate between passion and ritual, to be undecided between revolutionary ardour and technical proficiency. We can also expect that the Chinese may react in various irrational ways as they experience the disappointment and frustrations of not being able to solve rapidly their modernization problem. Yet the cumulative effects of all these experiences can only be to help clarify for the Chinese their basic problems of authority.

All of this is only to say that in the last analysis the problem of China in the modern world is very much an internal problem of the Chinese and that at this stage in history there is very little that outsiders can do to ease China's problems.

THE TECHNETRONIC AGE

ZBIGNIEW BRZEZINSKI

In a world shaped by technology and electronics, says the author, pragmatic analysis will increasingly replace ideological formulas. He foresees a new breed of politician-intellectuals who will face unprecedented problems with concerns broader than the politics of the past, and more relevant than those articulated by utopian critics. To describe this revolutionary transformation, he has coined the term "technetronic age." His article is abridged from "Encounter."

Professor Brzezinski is director of Columbia University's Research Institute on Communist Affairs. His books include "The Soviet Bloc: Unity and Conflict" and "Alternative to Partition," which proposes a plan for greater cooperation between Eastern and Western Europe.

THE WORLD is on the eve of a transformation more dramatic in its historic and human consequences than that wrought either by the French or the Bolshevik revolutions. Viewed from a long perspective, these famous revolutions merely scratched the surface of the human condition.

The changes they precipitated involved alterations in the distribution of power and property within society. They did not affect the essence of individual and social existence. Life—personal and organised—continued much as before, even though some of its external forms (primarily political) were substantially altered. Shocking though it may sound to their acolytes, by the year 2000 it will be accepted that Robespierre and Lenin were mild reformers.

Most of the change that has taken place in human history so far has been gradual—with the great "revolutions" being mere punctuation marks to a slow, hardly detectable process. In contrast, the approaching transformation will come more rapidly and will have deeper consequences for the patterns, and perhaps even for the meaning, of human life than anything experienced by the generations that preceded us.

America is already beginning to ex-

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perience these changes and in the course of so doing it is becoming a "technetronic" society: a society that is shaped culturally, psychologically, socially and economically not by the traditional industrial process but by the impact of technology and electronics, particularly computers and communications.

Recent years have seen a proliferation of exciting and challenging literature on the future. Both in the United States and, to a lesser degree, in Western Europe a number of systematic, scholarly efforts have been designed to project what the future holds for us. Curiously, very little has been heard on this theme from the Communist world, even though Communist doctrinarians are the first to claim their 19th-century ideology holds a special pass-key to the 21st century.

The work in progress indicates that men living in the developed world will undergo during the next several decades a mutation potentially as basic as that experienced through the slow process of evolution from animal to human experience. The difference, however, is that the process will be telescoped in time—and hence the shock effect of the change may be quite profound.

Man will increasingly possess the capacity to determine the sex of his children, to affect through drugs the extent of their intelligence, and to modify and control their personalities. The human brain will acquire expanded powers, with computers becoming as routine an extension of man's reasoning as automobiles have been of man's mobility. The human body will be improved and its durability extended. Some people estimate that during the next century the average life-span could reach approximately 120 years.

Communication and Computers

Other discoveries and refinements will further alter society as we know it. The information revolution, including extensive information storage, instant retrieval, and eventually push-button visual and sound availability of needed data in almost any private home, will transform the character of institutionalized collective education.

Cybernetics and automation will revolutionise working habits, with leisure becoming the practice and active work the exception—and a privilege reserved for the most talented. The achievement-oriented society might give way to the amusement-focussed society.

By the end of this century the citizens of the more developed countries will live predominantly in cities—hence almost surrounded by man-made environment. Confronting nature could be to them what facing the elements was to our forefathers: meeting the unknown and not necessarily liking it.

Enjoying a high personal standard of living, eating artificial food, speedily commuting from one corner of the country to work in another, in continual visual contact with their employer or family, consulting their annual calendars to establish on which day it will rain or shine—our descendants will be shaped almost entirely by what they themselves create and control.

In the industrial society, technical knowledge was applied primarily to one specific end: the acceleration and improvement of production techniques. Social consequences were a later by-product of this paramount concern. In the technetronic society, scientific and technological knowledge, in addition to enhancing productive capabilities, quickly spills over to affect directly almost all aspects of life.

This is particularly evident in the case of the impact of communications and computers. Communications create an extraordinarily interwoven society, with continuous visual and audial contact among almost all its members—electronically interacting, sharing instantly most intense social experiences, prompting far greater personal involvement.

In this society, men's consciousness will be shaped in a sporadic manner fundamentally different (as Marshall McLuhan has noted) from the literate or pamphleteering mode of transmitting information, characteristic of the industrial age. The growing capacity for calculating instantly most complex interactions and the increasing availability of biochemical means of human control increase the potential scope of self-conscious direction, and thereby also the pressures to direct, to choose, and to change.

Industrial vs. Technetronic Societies

The consequence is a society that differs from the industrial one in a variety of economic, political and social aspects. The following examples briefly summarise some of the contrasts:

1. In an industrial society, the *mode of production* shifts from agriculture to industry, with the use of muscle and animals supplanted by machine-operation. In the technetronic society, industrial employment yields to services, with automation and cybernetics replacing individual operation of machines.

2. Problems of *employment and unemployment* dominate the relationship between employers, labour, and the market in the industrial society. Assuring minimum welfare to the new industrial masses is a source of major concern.

In the emerging new society, the dominant questions relate to skill obsolescence, security, vacations, leisure, and profit-sharing. The matter of psychic well-being of millions of relatively secure but potentially aimless manual workers becomes a growing problem.

3. Breaking down traditional barriers to *education*, thus creating new possibilities for social advancement, is a major goal of social reformers in the industrial society. Education, available for limited and specific periods of time, is initially concerned with overcoming illiteracy, and subsequently with technical training, largely based on written, sequential reasoning.

In the technetronic society, not only has education become universal but advanced training is available to almost all who have the basic talents. The basic problem is to discover the most effective techniques for the rational exploitation of social talent. Latest communication and calculating techniques are applied to that end. The educational process becomes extended in time, while the flow of new knowledge necessitates more and more frequent refresher studies.

4. In the industrial society *social leadership* shifts from the traditional rural-aristocratic to an urban "plutocratic" elite. Newly acquired wealth is its

foundation, and intense competition the outlet—as well as the stimulus—for its energy.

In the post-industrial technetronic society plutocratic pre-eminence comes under a sustained challenge from the political leadership which itself is increasingly permeated by individuals possessing special skills and intellectual talents. Knowledge becomes a tool of power, and the effective mobilisation of talent an important way for acquiring power.

5. The *university* in an industrial society is an aloof ivory-tower, the repository of often irrelevant, even if respected wisdom, and the watering fountain for budding members of the established social elite.

In the technetronic society, the university becomes an intensely involved *think-tank,* the source of much sustained political planning and social innovation.

6. The turmoil inherent in the shift from the rigidly traditional rural to urban existence engenders an inclination to seek total answers to social dilemmas, thus causing *ideologies* to thrive in the industrial society.

In the technetronic society, increasing ability to reduce social conflicts to quantifiable and measurable dimensions reinforces the trend towards a more pragmatic problem-solving approach to social issues.

7. The activisation of hitherto passive masses makes for intense political conflicts in the industrial society over such matters as disenfranchisement and the right to vote. The issue of *political participation* is a crucial one.

In the technetronic age, the question increasingly is one of ensuring real participation in decisions that seem too complex and too far-removed from the average citizen. Political alienation becomes a problem.

8. The newly enfranchised masses are coordinated in the industrial society through trade unions and political parties, and integrated by relatively simple and somewhat ideological programmes. Moreover, political attitudes are influenced by appeal to *nationalist sentiments,* communicated through the massive growth of newspapers, relying, naturally, on native tongues.

In the technetronic society, the trend would seem to be towards the aggregation of the individual support of millions of uncoordinated citizens, easily within the reach of magnetic and attractive personalities effectively exploiting the latest communication techniques to manipulate emotions and control reason. Reliance on TV—and hence the tendency to replace language with imagery, with the latter unlimited by national confines—tends to create a somewhat more cosmopolitan, though highly impressionistic, involvement in global affairs.

9. *Economic power* in the industrial society is usually personalised, either in the shape of great entrepreneurs like Henry Ford or bureaucratic industrialisers like Kaganovich in Russia, or Minc in Poland.

The tendency towards de-personalisation of economic power is stimulated in the next stage by the appearance of a highly complex interdependence between governmental institutions (including the military), scientific establishments, and industrial organisations. As economic power becomes inseparably linked with political power, it becomes more invisible and the sense of individual futility increases.

10. *Relaxation and escapism* in the industrial society, in its more intense forms, is a carry-over from the rural drinking bout, in which intimate friends and family would join. Bars and saloons —or fraternities—strive to recreate the atmosphere of intimacy.

In the technetronic society social life tends to be so atomised, even though communications (especially TV) make for unprecedented immediacy of social experience, that group intimacy cannot be recreated through the artificial stimulation of externally convivial group behaviour.

All of these changes, and many others that affect much more directly the personality of the human being itself, will make the technetronic society as different from the industrial as the industrial became from the agrarian.

The American Transition

America is today in the midst of a transition. U.S. society is leaving the phase of spontaneity and is entering a more self-conscious stage; ceasing to be an industrial society, it is becoming the first technetronic one. This is at least in part the cause for much of the current tensions and violence.

Spontaneity made for an almost automatic optimism about the future, about the "American miracle," about justice and happiness for all. This myth prompted social blinders to the various aspects of American life that did not fit the optimistic mould, particularly the treatment of the Negro and the persistence of pockets of deprivation. Spontaneity involved a faith in the inherent goodness of the American socio-economic dynamic: as America developed and became richer, problems that persisted or appeared would be solved.

This phase is ending. Today, American society is troubled and some parts of it are even tormented. The social blinders are being ripped off—and a sense of inadequacy is becoming more widespread.

The spread of literacy, and particularly the access to college and universities of about 40 per cent of the youth, has created a new stratum—one which reinforces the formerly isolated urban intellectuals —a stratum not willing to tolerate either social blinders or the complacent belief in the spontaneous goodness of American social change.

Yet it is easier to know what is wrong than to indicate what ought to be done. The difficulty is not only revealed by the inability of the new social rebels to develop a concrete and meaningful programme. It is magnified by the novelty of America's problem.

Turning to 19th century ideologies is not the answer—and it is symptomatic that the "New Left" has found it most difficult to apply the available, particularly Marxist, doctrines to the new reality. Indeed, its emphasis on human rights, the evils of depersonalisation, and the dangers inherent in big government contains strong parallels to more conservative notions about the place and sanctity of the individual in society.

It seems unlikely that a unifying ideology of political action, capable of mobilising large-scale loyalty, can emerge in the manner that Marxism arose in response to the industrial era. Science and technology are notoriously unsympathetic to simple, absolute formulas. In the technetronic society there may be room for pragmatic, even impatient, idealism, but hardly for doctrinal utopianism.

Whatever the outcome of the present ferment, American society is the one in which the great questions of our time will be first tested through practice. Can the individual and science co-exist, or will the dynamic momentum of the latter fundamentally alter the former?

Can man, living in the scientific age, grow in intellectual depth and philosophical meaning, and thus in his personal liberty too? Can the institutions of political democracy be adapted to the new conditions quickly enough to meet the crises, yet without debasing their democratic character?

Fragmentation and Control

The challenge in its essence involves the twin-dangers of fragmentation and excessive control. Symptoms of alienation and depersonalisation are already easy to find in American society. Many Americans feel "less free." This feeling seems to be connected with their loss of "purpose" for freedom implies choice of action, and action requires an awareness of goals.

If the present transition of America to the technetronic age achieves no personally satisfying fruits, the next phase may be one of sullen withdrawal from social and political involvement, a flight from social and political responsibility through "inner-emigration." Political frustration could increase the difficulty of absorbing and internalising rapid environmental changes, thereby prompting increasing psychic instability.

Moreover, the rapid pace of change will put a premium on anticipating events and planning for them. Our existing *post*-crisis management institutions will probably be increasingly supplanted by *pre*-crisis management institutions, the task of which will be to identify in advance likely social crises and to develop programmes to cope with them.

Finally, looking ahead to the end of this century, the possibility of bio-chemical mind-control and genetic tinkering with man, including eventually the creation of beings that will function like men —and reason like them as well—could give rise to the most difficult questions.

According to what criteria can such controls be applied? What is the distribution of power between the individual and society with regard to the means that can altogether alter man? What is the social and political status of artificial beings, if they begin to approach man in their performance and creative capacities? (One dares not ask, what if they begin to "outstrip man"?—something not beyond the pale of possibility during the next century.)

Yet it would be highly misleading to construct a one-sided picture, a new Orwellian piece of science fiction. Many of the changes transforming American society augur well for the future and allow at least some optimism about this society's capacity to adapt to the requirements of the metamorphic age.

Thus, in the political sphere, the increased flow of information and more efficient techniques of co-ördination need not necessarily prompt greater concentration of power within some ominous control agency located at the governmental apex.

Paradoxically, the development of new communications and computer techniques makes possible greater transfer of authority and responsibility to the lower levels of government and society. It is very likely that state and local government will be strengthened in the next ten years, and many functions currently the responsibility of the federal government will be assumed by them.

The transfer of financial responsibility to lower echelons may encourage both the flow of better talent to local government and greater community participation in important local decision-making. National co-ordination and local participation could thus be wedded; as has already been done successfully by some of the large businesses.

This development would also have the desirable effect of undermining the appeal of any new integrating ideologies that may arise; for ideologies thrive only as long as there is an acute need for abstract responses to large and remote problems.

Dissenters and Experts

It is also a hopeful sign that improved governmental performance, and its increased sensitivity to social needs, is being stimulated by the growing involvement in national affairs of what Professor Kenneth Boulding has called the Educational and Scientific Establishment. The university at one time, during the Middle Ages, was a key social institution. Political leaders leaned heavily on it for literate confidants and privy counsellors, a rare commodity in those days. Later divorced from reality, academia in recent years has made a grand re-entry into the world of action.

Today, the university is the creative eye of the massive communications complex, the source of much strategic planning, domestic and international. Its engagement in the world is encouraging the appearance of a new breed of politician-intellectuals, men who make it a point to draw on the most expert scientific and academic advice in the development of their political programmes. This, in turn, stimulates public awareness of the value of expertise—and, again in turn, greater political competition in exploiting it.

A profound change in the intellectual community itself is inherent in this development. The largely humanist-oriented, occasionally ideologically-minded intellectual-dissenter saw his role largely in terms of proffering social critiques. Now he is rapidly being displaced either by experts and specialists, who become involved in special governmental undertakings, or by the generalists who provide overall intellectual integration for disparate actions.

This community of organisation-oriented, application-minded intellectuals serves to introduce into the political system various concerns broader than those likely to be generated by that system itself. And perhaps they are more relevant than those articulated by outside critics.

Continuous Growth

The expansion of knowledge, and the entry into socio-political life of the intellectual community, has the further effect of making education an almost continuous process. By 1980, not only will approximately two-thirds of U.S. urban dwellers be college-trained, but it is almost certain that systematic "elite-retraining" will be standard in the political system.

It will be normal for every high official both to be engaged in almost continuous absorption of new techniques and knowledge, and to take periodic retraining. Otherwise, it will not be possible either to keep up with, or absorb, the new knowledge.

It is quite possible that a society increasingly geared to learning will be able to absorb more resiliently the expected changes in social and individual life. Mechanisation of labour and the introduction of robots will reduce the chores that keep millions busy doing things that they dislike doing.

Increased income, linked with educational advance, could prompt among those less involved in social management and less interested in scientific development a wave of interest in the cultural and humanistic aspects of life, in addition to purely hedonistic preoccupations. But even the latter would serve as a social valve, reducing tensions and political frustration.

Using Social Talent

But the key to successful adaptation to the new conditions is in the effective selection, distribution and utilisation of social talent. If the industrial society can be said to have developed through a struggle for survival of the fittest, the technetronic society—in order to prosper—requires the effective mobilization of the ablest.

Objective and systematic criteria for the selection of those with the greatest gifts will have to be developed, and the maximum opportunity for their training and advancement provided. The new society will require enormous talents—as well as a measure of philosophical wisdom—to manage and integrate effectively the expected changes. Otherwise, the dynamic of change could chaotically dictate the patterns of social change.

Fortunately, American society is becoming more conscious not only of the principle of equal opportunity for all but of special opportunity for the singularly talented few. Never truly an aristocratic state (except for some pockets such as the South and New England), never really subject to ideological or charismatic leadership, gradually ceasing to be a plutocratic-oligarchic society, the United States is becoming something which may be labelled the "meritocratic democracy." It combines continued respect for the popular will with an increasing role in the key decision-making institutions of individuals with special intellectual and scientific attainments.

The recruitment and advancement of social talent is yet to extend to the poorest and the most underprivileged, but that too is coming. No one can tell whether this will suffice to meet the unfolding challenge, but the increasingly cultivated and programmed American society, led by a meritocratic democracy, may stand a better chance.

More Distinct Worlds

For the world at large, the appearance

of the new technetronic society could have the paradoxical effect of creating more distinct worlds on a planet that is continuously shrinking because of the communications revolution. While the scientific-technological change will inevitably have some spill-over, not only will the gap between the developed and the under-developed worlds probably become wider—especially in the more measurable terms of economic indices—but a *new one* may be developing *within* the industrialised and urban world.

The fact is that America, having left the industrial phase, is today entering a distinct historical era: and one different from that of Western Europe and Japan. This is prompting subtle and still indefinable changes in the American psyche, providing the psycho-cultural bases for the more evident political disagreements between the two sides of the Atlantic.

To be sure, there are pockets of innovation or retardation on both sides. Sweden shares with America the problems of leisure, psychic well-being, purposelessness; while the American state of Mississippi is experiencing the confrontation with the industrial age in a way not unlike some parts of Southwestern Europe. But I believe the broad generalisation still holds true: Europe and America are no longer in the same historical era.

At the same time, the less developed regions of the world are becoming more, rather than less, poor in relation to the developed world. The social elites of these regions, however, will quite naturally tend to assimilate and emulate, as much as their means and power permit, the life-styles of the most advanced world, with which they will be in increasingly close contact through global television, movies, travel, education, and international magazines. The international gap will thus have a domestic reflection, and the masses—given the availability even in most backward regions of transistorised radios (and soon television)—will become more and more intensely aware of their deprivation.

Bridging the Gap

The underlying problem will be to find a way of avoiding somehow the widening of the cultural and psycho-social gap inherent in the growing differentiation of the world. Even with gradual differentiation throughout human history, it was not until the industrial revolution that sharp differences between societies began to appear. Today, some nations still live in conditions not unlike pre-Christian times; many no different than in the medieval age.

Yet soon a few will live in ways so new that it is now difficult to imagine their social and individual ramifications. If the developed world takes a leap—as seems inescapably the case—into a reality that is even more different from ours today than ours is from an Indian village, the gap and its accompanying strains will not narrow.

However, the pace of American development, which widens the split within mankind, also contains the seeds for a constructive response. During the remainder of this century, America is likely to become less concerned with "fighting communism" or creating "a world safe for diversity" than with helping to develop a common response with the rest of mankind to the implications of a truly new era. This will mean making the massive diffusion of scientific-technological knowledge a principal focus of American involvement in world affairs.

To some extent, the United States performs that role already—simply by being what it is. The impact of its reality and its global involvement prompts emulation. The emergence of vast international corporations, mostly originating in the United States, makes for easier transfer of skills, management techniques, marketing procedures, and scientific-technological innovations. The appearance of these corporations in the European market has done much to stimulate Europeans to consider more urgently the need to integrate their resources and to accelerate the pace of their own research and development.

Similarly, returning graduates from American universities have prompted an organisational and intellectual revolution in the academic life of their countries. Changes in the academic life of Britain, Germany, Japan, more recently France, and (to even a greater extent) in the less developed countries, can be traced to the influence of U.S. educational institutions. Given developments in modern communications, is it not only a matter of time before students at New York's Columbia University and, say, the University of Tehran will be watching, simultaneously, the same lecturer?

A New International Style

The appearance of a universal intellectual elite, one that shares certain common values and aspirations, will somewhat compensate for the widening differentiation among men and societies. But it will not resolve the problem posed by that differentiation.

In many developing nations tension between what is and what can be will be intensified. Moreover, as Kenneth Boulding observed:

> The network of electronic communication is inevitably producing a world super-culture, and the relations between this super-culture and the more traditional national and regional cultures of the past remains the great question mark of the next fifty years.

That "super-culture," with its own universal electronic-computer language, will find it difficult to relate itself to "the more traditional national and regional cultures," especially if the basic gap continues to widen.

To cope with that gap, a gradual change in diplomatic style and emphasis may be required. Professional diplomacy will have to yield to intellectual leadership. With government negotiating directly—or quickly dispatching the negotiators—there will be less need for ambassadors who are resident diplomats and more for ambassadors who are capable of serving as creative interpreters of the new age, willing to engage in a meaningful dialogue with the host intellectual community, and concerned with promoting the widest possible dissemination of available knowledge. Theirs will be the task to stimulate and develop scientific-technological programmes of cooperation.

International co-operation will be necessary in almost every facet of life: to reform and to develop more educational systems, to promote new sources of food supply, to accelerate economic development, to stimulate technological growth, to control climate, to disseminate new medical knowledge.

However, because the new elites have a vested interest in their new nation-states and because of the growing xenophobia among the masses in the third world, the nation-state will remain for a long time the primary focus of loyalty. Hence, regionalism will have to be promoted with due deference to the symbolic meaning of national sovereignty—and preferably also by encouraging those concerned themselves to advocate regional approaches.

Even more important will be the stimulation, for the first time in history on a global scale, of the much needed dialogue on what it is about man's life that we wish to safeguard or to promote, and on the relevance of existing moral systems to an age that cannot be fitted into the narrow confines of fading doctrines.

The search for new directions—going beyond the tangibles of economic development—could be an appropriate subject for a special world congress, devoted to the technetronic and philosophical problems of the coming age. To these issues no one society, however advanced, is in a position to provide an answer.

A PLEA FOR MORAL CHOICES

JOSEPH WOOD KRUTCH

An eminent humanist and naturalist argues that advances in science and technology are no guarantee of social progress. He asks whether criteria can be set for judging the potential good or evil of a given scientific inquiry—and whether controls can be placed on research and invention without destroying intellectual freedom. His article is abridged by permission from "Bell Telephone Magazine" for March/April 1969.

Joseph Wood Krutch is one of America's senior citizens and most versatile men of letters. He has been a drama critic, a professor of literature, a biographer (of Edgar Allan Poe, Samuel Johnson and Henry David Thoreau), a philosopher, and most recently a naturalist. His more than twenty books include "The Modern Temper," "The Measure of Man," and "Human Nature and the Human Condition."

THE QUARTER CENTURY just past has seen advances in science and technology unprecedented in human history. Atomic fission, space travel and, most recently, the discoveries relating to the innermost secrets of life and heredity would hardly have been predicted even a generation ago except, perhaps, for some dim future as far ahead as thoughts can reach.

They have come upon us almost unaware, and we hope, of course, that somehow good will be the result of all three. But even the most optimistic are bound to admit that each is also a potential threat. The growing question is: Does our nation need some central advisory body or criteria to judge whether advances in science and technology contribute to human welfare or create still other potential threats?

Atomic fission raises the possibility that civilization may be destroyed. A war of the worlds made possible by space travel is not so likely as the possibility that its appeal to the imagination may tempt us to spend the money, energy and brain power on it which might more profitably be employed in solving human problems here on earth.

The threat from macromolecular biology may be more remote but is, ultimately, at least equally frightening. If we believe the claims of those in the best position to know, it promises ultimately the power to determine the intelligence, character and temperament of unborn generations. And that suggests the possibility of a totalitarianism more complete than we have previously dreamed of.

Up until now, there always seemed the possibility that human nature could not be completely controlled either for good or for ill. But what if human nature itself can be changed or abolished?

None of these threats will necessarily become a reality. And in the past, science has bestowed upon us enormous increases in comfort, health and affluence. Yet during the quarter century which gave us atomic fission, space travel and the achievements of biochemistry, some aspects of the human condition have deteriorated. Specifically, over-population, environmental pollution and epidemic violence are all new. They are the most pressing problems of today and are likely to continue to be for a long time to come.

Is Progress Inevitable?

It is not necessary to believe that advances in science and technology are the cause of these deteriorations. But one has accompanied the other and the minimum conclusion to be drawn is that advances in science and technology alone are no guarantee of accompanying improvement in the human condition.

To be sure, there have always been nonconformists (usually men of letters) who expressed doubts about "progress." One recalls the philosopher in Samuel Johnson's moral romance *Rasselas* who had invented a flying machine but refused to reveal its secret because, so he said, men should not be permitted to fly until after they had become virtuous.

But despite such grumblers, the generally accepted assumptions ever since the 16th century had been that every increase in knowledge, power or technical ingenuity would in the end contribute to the improvement of the human condition; that the extent to which science and technology had developed was indeed a measure of the extent to which a good life was being led in any community; and finally, that, as the Marxists said, all changes in the human condition are simply the inevitable consequences of evolving technology.

From these propositions, and especially from the last, there was a tendency to conclude that one need not concern oneself with any other aspect of a good life for the simple reason that the benefits will all develop as byproducts of the advancing knowledge, power, and affluence.

Because technological changes have been so accelerated during the past quarter century, responsible scientists and technicians have begun to question whether progress in technology inevitably means improvement of the human condition. And they are suggesting that the time has come when we must realize that certain powers are dangerous, certain inventions are threats rather than promises, and that, in a word, we must begin to ask not simply *can* we do this or that but *should* we do this or that. We may not be able to wait for men to become virtuous before sending them to the moon, but we realize that sending them there will not necessarily make them more so.

Neither Anthony Weiner, formerly of the Massachusetts Institute of Technology, nor Herman Kahn, formerly of the Rand Corporation, is a man we would expect to be an enemy of science and technology. Yet in their recent book *The Year 2000* they issue a solemn warning: "Practically all the major technological changes since the beginning of industrialization have resulted in unforeseen consequences. . . . Our very power over nature threatens to become itself a source of power that is out of control. . . . Choices are posed that are too large, too complex, too important and comprehensive to be safely left to fallible human beings."

Drugs and Genes

Some threats are indirect in the sense that they affect the environment which in turn affects the human being. Those created by biochemistry threaten directly human intelligence, personality and character. They put into man's hands godlike powers he himself is not sufficiently godlike to be trusted with. In April 1968 the University of California psychologist, Dr. David Krech, told a Senate subcommittee that within the next decade medical scientists will be able to exert a significant degree of control over man's mind.

Different drugs, said Dr. Krech, affect different kinds of intellectual activity. Thus an antibiotic called Puromycin prevents long-time, but not short-time, memories. Injected into an animal, it "permits it to put in an ambitious day's work although it will not build up a permanent body of experiences or memories or abilities." It might be used to produce, for instance, a body of subhuman but docile workers much like those who compose one of the biologically established social classes in Aldous Huxley's *Brave New World,* considered wild fantasy only 37 years ago.

Dr. Krech's statement is cautious because it looks a mere decade ahead. His colleague at the University of California, Prof. Robert Sinsheimer, professor of biophysics, raises more alarming possibilities without setting a definite deadline:

> "Eventually we will surely come to the time when man will have the power to alter, specifically and consciously, his very genes. This will be a new event in the universe. No longer need nature wait for the chance mutation and the slow process of selection. Intelligence can be applied to evolution.
>
> "How might we like to change his genes? Perhaps we would like to alter the uneasy balance of our emotions. Should we be less warlike, more self-confident, more serene? Perhaps. Perhaps we shall finally achieve these long-sought goals with techniques far superior to those with which we have had to make do for many centuries."

The Responsibility of the Scientist

Is such a power too great to be trusted to "fallible human beings"? Will it be used to make us more or less warlike, self-confident and serene? The answer, no doubt, is that this will depend upon whose hands the power falls into. And as things now stand, we who already control so much have developed no way of determining into whose hands any of our new powers will pass.

In its simplest form, the question of proper use arises in connection with what has come to be called "the responsibility of the scientist." Is it his duty, before giving a discovery or an invention to the public, to ask the simple question, "Will this knowledge (or indeed *can* this knowledge) be well used?"

What would have been the nearly unanimous reply until very recently was given a few years ago by Dr. Edward Teller in connection with atomic fission and its possible catastrophic effects: "I believe that we would be unfaithful to the tradition of western civilization if we were to shy away from exploring the limits of human achievement. It is our specific duty as scientists to explore and explain. Beyond that our responsibilities cannot be greater than those of any other citizen of our democratic society."

At an opposite extreme, the late Robert Oppenheimer confessed to the feeling that he had "known sin" as a result of his involvement in the creation of the atomic bomb.

One need not question the reasonableness of either one or the other of these attitudes to see that, justifiable or not, neither is really helpful. Neither washing the hands nor wringing the hands solves the problems created by the fact, now plainly evident for the first time in history, that we have begun to assume powers which need to be channelled and not simply turned loose upon the world to see what will happen.

Knowledge is power, but it is not equally evident that power is always good. Science is knowledge; technology is doing. But it is no longer safe to say that whatever we can do we should do.

Professor Sinsheimer is an optimist: "After two billion years, this is the end of the beginning. It would seem clear, to some achingly clear, that the world, the society, and the man of the future will be far different from that we know.... We must hope for the responsibility and the wisdom and the nobility of spirit to match this ultimate freedom."

There remains the question of whether we can indeed do nothing more than hope (and perhaps fear). Professor Sinsheimer seems willing to propose no alternative, but neither Professor Krech nor the Messrs. Weiner and Kahn are willing to leave to chance the use which will be made of powers still difficult for most of us to imagine.

"The issues I have raised," said Prof. Krech, "are much too pervasive and too profound to permit the physician to scribble the necessary social policy on his prescription pad." He proposes a national commission to determine how the new drugs shall be used.

Messrs. Weiner and Kahn go even a step further than that. For the future they suggest that neither science nor technology shall pursue new discoveries or develop new applications of scientific knowledge without first investigating their possible consequences for evil as well as for good.

In saying that, they go far beyond the mere rejection of Dr. Teller's contention that the scientist should assume no responsibility for the use made of his discovery. They propose the attitude that the philosopher in *Rasselas* assumed when he believed that an invention should not be given to the world until men had become virtuous enough to make only good use of it. It is not likely that Dr. Johnson himself regarded his philosopher's proposal as practicable, but one begins to wonder if any other really is.

The Dangers of Control

It is very well to suggest "a national council to evaluate how mind-influencing drugs shall be used" or to say with Messrs. Weiner and Kahn that the choices are too fateful "to be safely left to fallible human beings." But where are we to find infallible human beings to whom we may safely trust the control of the uncontrollable?

A committee invested with the powers to determine just how virtuous mankind had become, how the human mind and character should be changed, or even what technological uses should be made of our increased power over nature would be possible only in a totalitarian society so absolute that its decrees would, in the end, probably be more stupid than those made today by pure chance. The dehumanized "brave new world" envisioned by Aldous Huxley would already be here.

Obviously we will have to make do with something less fruitful than tight bureaucratic control of science and inventions. On the other hand, there is a desperate need for something more effective than now exists. We need some body or bodies which would at least suggest, influence and direct the ends towards which research and its applications are aimed and encourage certain tendencies even if the bodies did not go so far as to forbid others.

The beginnings of the power to do at least this much already exist to a significant extent by virtue of the fact that a large proportion of all scientific and technological projects now being actively pursued owe their existence to grants from the national government, various foundations, or industry itself. To a considerable extent these institutions determine what enterprises in either pure or applied science will be undertaken. They must have certain criteria on which they make their decisions.

In the case of the government, the criteria are largely those relating to the supposed military necessity. In the case of industry, they relate largely to the possibility of ultimate profits. But neither government nor industry follows rigidly these criteria. Both support projects which seem to be simply "in the public interest."

Nevertheless and insofar as one can judge, the enterprises which government, industry and the foundations support are selected on the basis of criteria usually not up to date. They are based upon the 19th century assumptions: all knowledge is good; even the most useless scientific fact may turn out to be important; every technological advance is beneficial; progress is inevitable, and so forth and so forth.

But none of these things is true any longer. There are by now so many things which could be found out and so many things which could be done that we must pick and choose whether we do them on the basis of conscious or unconscious preferences. Unless everything quoted in this article from distinguished contemporary scientists is untrue, there is a crying need for revised criteria to help those who support research and development decide which project should be supported.

Perhaps the time will come soon—perhaps it is already here—when some central advisory committee will both advise and, without exercising any absolute authority, be able to do something more than merely advise, since it will control a good many of the purse strings. But even without the existence of a central body, those existing bodies which control important purse strings and apply certain criteria could accomplish a great deal by revising the criteria.

Making A Start

The implications of the need for criteria or some control are strong not only for the United States but also for the rest of the world because all mankind faces the same threats. But international controls are almost unthinkable in a time when nations squabble over matters much more petty than the destiny of man. So a start could best be made within each technologically advanced country.

There are several steps to be taken before either the existing bodies come up with acceptable criteria or a national board is created. These steps consist in recognizing the following facts:

That science and technology can be catastrophic as well as beneficial.

That we cannot afford to wait and see what the effects of any specific application of new powers will be because once they have been acquired they cannot be eliminated. Whether atomic fission and the ability to control the mind are regarded as promises or threats, we are saddled with them, and they cannot be abolished now.

That science for science's sake, the pursuit of knowledge without thought of how it may be applied, are no longer tenable aims.

That knowledge and power are good only insofar as they contribute to human welfare.

In a sense Congress determines whether certain projects shall be undertaken. It votes money for the space programme, the National Science Foundation and so forth. But it does not really establish any priorities except insofar as it votes or refuses to vote funds.

Nobody in a position to exercise any real influence ever asks what is, for example, the relative importance of getting to the moon as against abolishing pollution on earth. Is it more important to build supersonic transport planes than to clear the slums? Those are questions which should be examined in the light of meaningful criteria. The criteria, however, have never been formulated. A body charged with formulating them and composed of men in the humanistic and the physical sciences could at least make a beginning.

ANOTHER 'TWO CULTURES': HUMANE AND PROFESSIONAL APPROACHES TO LITERATURE

GEORGE S. ROUSSEAU

A former member of the Harvard University English Department writes about his feelings during 1968, at which time the seeds of the trouble that were later to blossom there were visible. Professor Rousseau, a professor of English now teaching at the University of California, originally published this piece at the request of the Alumni Association of Harvard University, in their "Alumni Bulletin," 1968.

To THOSE OF US who teach English and who reflect, however briefly, on the success of our teaching and the nature of our students, one truth is clear. Somehow we are failing. The reasons for this failure are less clear, but the fact of the failure itself is lucidly evident.

Occasionally one meets or hears about a bright young college teacher of English who enthralls his students and whose students adore him. And one says, how nice, how extraordinary, how fine! But as I stand at the head of my classes, I see more usual attitudes reflected in facial expressions of boredom, apathy, gloom, despair, and even horror.

Perhaps these moods are nothing more than evidence of my own poor teaching, but I think not. They reflect, instead, the whole mood and tone of the modern student's plight with English literature as it is being taught in colleges and universities across the nation.

As I said, the reasons for our failure are blurry and elusive—anything but obvious. Almost any single explanation seems unbearably reductionistic and wrapped in greater complexity. And while "a number of factors—historical, literary, educational, and pedagogic" appears the more satisfactory answer, these, too, seem to miss the point, to evade the larger implications of the failure.

Who Majors in English?

One could argue, for example that departments of English today boast more majors than almost any field. At Harvard, English, History, and Social Relations are the most "popular" subjects—if one counts heads. But surely the reasons for the apparent popularity of English go far beyond love of learning, of literature, or commitment to the profession of letters.

Undergraduates choose English for numerous reasons *other* than the subject itself. English is easy and general, requires no special vocabulary or set of difficult symbols, and is adequate pre-preparation for careers in business, law, the State Department, finance, social work, journalism, the Peace Corps, and on and on as far as movie-making, sailing yachts, and managing chains of Italian pizzerias.

Moreover, one can always think of something to say about *Hamlet,* even if one hasn't read the play, and in how many other majors (try physics, biochemistry, or Ancient Greek to start with) can you get away with that? Further, anyone with a modicum of intelligence can read his native tongue, and if the student can't understand Chaucer or Shakespeare, let him read Faulkner or Hemingway, and if he can't do that, let him write poetry or sell pretzels: English faculty members are not infrequently the most tolerant of professors, and more usually than not, anything goes. In brief, English is a gut.*

Not so, the serious student replies, if you wish to do well; if you seek distinction, a *summa cum laude,* or other accolades (like getting into a top graduate school). And here is where the trouble—the reasons for the failure of explanation—begins. Perhaps no other academic area is so besieged with heterogeneity of backgrounds, talents, and ambitions. This raises for every teacher of college English the question, to whom do I cater?

Often the teacher is unable or unprepared to instruct his best students, but in universities like Harvard, Yale, and Princeton, where teachers of English are often distinguished critics and scholars in their own right, the problem of the teacher's ability to instruct and delight would seem not to exist. But it does. For the student replies, once again, "distinguished" in what sense? If X or Y is an international authority on Donne or Pope, this doesn't mean he can teach. Instruct us maybe, but not delight us. For we are not interested in Donne or Pope, and his status as a respected authority on these authors does not imply that he communicates to us his own excited sense of their importance.

The Demand for Relevance

If the student's line of argument were to end at this point, the solution would be simple simon: let all Donne and Pope scholars communicate excitedness! But the student, if you listen to him, has only begun, and his questions of relevance are to follow. Stated baldly, his case goes like this:

I don't really care about John Donne or Alexander Pope, one a melancholic divine, the other a Catholic cripple. I'm not really interested in Donne's world or Pope's society. Their poems aren't aesthetically pleasing in the way that those of Yeats and Eliot are. In short, I read them only because they are assigned.

The same would probably be said of Spenser, Jonson, Herbert, Crashaw, Milton, James Thomson, and tens of other pre-Romantic poets, to say nothing of prose writers. Donne and Pope, in addition, have little or no relevance to careers in business, law, and film-making.

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* Slang for easy subject.

The fact that Professor X is president of the Pope Society of America is not only unimpressive, it is downright proof of pedantry—that he spends his time collecting footnotes (I was tempted to say fossils, repeating the charge of a former student).

If Donne and Pope won't illuminate my life, I don't want them. If their poetry cannot help solve my identity crisis—as can Hamlet, when taught by the "right" man, not the president of the Shakespeare Scholars—I won't read them for love, but out of a sense of obedience. So goes the argument of the nineteen-year-old.

The frightening aspect of the problem is that Donne and Pope (no more than most other poets before 1800, roughly) probably cannot help solve typical identity crises, cannot become "relevant." And further, that nineteen-year-olds will continue to experience identity crises, among other things. We can no more expect undergraduates to give up their identity crises than expect Dearborn* to stop producing Fords. It is a fact of life.

Then either make Donne and Pope "relevant," the intelligent student implores, or chuck them by the wayside. The professor explains that the world of Donne's poetry and prose was vastly remote from our own, that Augustan England was radically different from America in 1968 and finally, that however much he wishes it were otherwise, Donne's religious problems and Pope's moral ones are epochs away from Vietnam, LSD, and the Sexual Revolution; that the student must develop some historical imagination to understand these authors, and must understand what their words meant. All this while, nagging at the back of his mind, is the student's initial question—why are Donne and Pope relevant to me and my life at this time?

It is probable that the student himself does not comprehend all the ramifications of his question. Though he probably enjoys a greater awareness of the problem than does his teacher (whose own identity crises probably occurred several decades ago), he is still groping.

In today's scientific and technological world, the student of English inevitably feels queasy about his area of concentration, its vague perimeters and undefined regions. Problems in mathematics and physics have objective answers; English has none. The problems themselves are problematic in the study of literature. He is surrounded by specialists of every variety and wonders why he is not a specialist. Not that he wishes to become one, but in numbers and majorities there lies strength.

Surrounded by a fast-moving world in which facts of every sort are essential, he can barely remember 1066 and 1798. The facts of his field he considers useless, especially when they describe Shakespeare's bathtub, but he sees his scientific comrades busily searching for more and more facts, more and more data, and the queasiness returns. He comforts himself with the knowledge that English 100 won't last forever, but the insecurity still persists.

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* A city in Michigan where Ford automobiles are manufactured.

Form and function, form and content, style and sense—these claptraps of jargon no longer enthrall him, as they once did, nor can they excite him as his psychologist roommate is excited by recent research in brain theory, dreams, and the physiology of memory. Underneath he wishes he were something other than "an English concentrator," but he doesn't know what, and doubts that he could do something important—like nuclear physics or topology.

He is the only amateur among experts. Even the worst history majors have vaster knowledge than he, are greater specialists than he. He doubts that he can recite more than twenty lines by heart, and he isn't sure which century Donne lived in.

English may offer him a feeling of being part of a certain "in-group," sensitive and delicate, perhaps long-haired and eccentric—but then he rightly suspects that this temporary condition cannot last forever, and that his culture respects and admires scientists only. While his friends are dreaming of Ph.D.'s in some abstruse realm, he awaits the day he can embark upon business or the law, and finally become—free.

Problems in Teaching Literature

Part of the student's difficulty has nothing to do with himself. The history of the teaching of English literature in this country from 1930 to the present is largely responsible for his unhappiness. Since then, high-school teaching of English has deteriorated—one proof being the very small number of entering college freshmen who indicate English as their chosen field of study. Math is made more attractive to them.

On the college level, the New Criticism (methods taught by Cleanth Brooks and Robert Penn Warren) removed the ideas from literature and left it with form only. The old standby, "form and content," was reduced to form alone. College students today cannot be sufficiently aroused by form bereft of ideas. Their world teems with ideas; they are forever searching for new ones. The new idea pleases.

Were we to "put back" ideas into literature, the situation might well improve; but even here I am sceptical, since few modern men can deny that brain theory is more interesting than the New Science of Bacon or Restoration politics. This is to say nothing of the dull drudgery of graduate school in English, which undergraduates hear about from the day they sign their concentration cards. That this is untrue is irrelevant: the point is, they *think* it is true.

They hear about the least rewarding aspects only: counting caesuras in Chapman, or compiling bibliographies about Trollope's brothers. From the academic grapevine they hear that fellowships there are niggardly compared to the sciences, that one goes into debt, that no employer wants a kid with a degree in English, that the average number of years it takes to get an advanced degree is astronomical, that afterwards, life is publish or perish. Under this grave weight the undergraduate student collapses—understandably.

If this isn't enough to upset him, the Vietnam war torments him, prevents him from discovering himself at his own pace. He hovers between Donne scholars and draft officials, trapped and doomed.

More subtle is his distrust of the kind of knowledge critics and scholars today have. If he abhors the Shakespeare's-bathtub approach to literature, he is even less tolerant of the vague and abstract generalizations (he calls them by another name) of his colleagues and teachers. He knows inwardly that he can conjure better "cepts," though they have no relation to the facts.

While his friends are breaking the barriers of knowledge by studying the contents of electrons and helping cure cancer, he is the last Renaissance Man --contemplating life and death. But he knows that the Renaissance is dead and that he, consequently, is something of a fraud. In this specialized society one asks the cardiologist about the heart, and so on down the line, and no one asks him about anything—because he knows nothing (not even himself).

He has heard mention of the great literary industries*—the Yale Walpole and Boswell, the Columbia Milton, the California Dryden, the Wesleyan Fielding, and now the Iowa Smollett—but he doesn't really understand what these are all about. He thinks of them as so many more bathtubs, and just imagine devoting a lifetime to the study of Horace Walpole or James Boswell!

A man may have read all *n* million of Walpole's letters and still misunderstand himself. The paradox is between meaningless facts and non-useful abstractions. Science, he thinks, is a clear-cut case of right and wrong answers, a discipline where facts alone are significant. All this adds to his onus and sense of guilt.

'The Humanities are Dead'

But there is something else too. Students of English, today perhaps more than ever, have a deep intuitional sense that the humanities are dead. If not positively dead, at least dying.

They consider departments of English to be the last strongholds of the older humanism. Indeed they wish, like Matthew Arnold, they could end the creeping wave of scientific predominance and return to an older and gayer world. English, I have been told over and over again by my students, is a study where all involved can afford to pause and reflect upon why we do this or that, why we should read A or B

They will acknowledge, of course, that professors of organic chemistry would have nervous fits if asked the question, why is Chemistry important to me? But nevertheless, English should remain general and relaxed, should confront the large questions, should debate the draft and the war and the definition of an intellectual.

They cannot understand that many of their teachers are no less "scientists" than the men in the white coats. Studying the folios of Shakespeare or Pope's manuscripts, annotating Walpole's letters, dating holographs—these pursuits are every whit as "scientific" and objective as protons.

They fail (and I am not condemning but trying to comprehend them) to observe that the prophets of wisdom have themselves become victimized by the Age of Specialization, were hired in the first place because they could edit Pope's manuscripts; that their sensitivity to a literary work may be no greater than that of the man in the street. But that they have a *trade*—and here is the point—a trade that is specialized and highly commercial, but not necessarily interesting to the immediate consumer.

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* The practice in many universities of supporting complete editings of one or another literary figure.

The professor's specialization is proof to the student that the humanities are dead. One need examine nothing more than the word humanities itself. There is nothing human or humane about folios, manuscripts, or the history of ideas—the argument goes. The only solace is that Classics is even deader.

To the college student, the writing is on the wall: the best talent is being attracted to the sciences and it isn't even clear today just what the study of English should be. There has been no prophet to turn the tide since the New Critics. All is one wasteland; "Universal darkness buries all." And he himself a failure.

Clearly, undergraduates are no more oppressed by the metaphysics of John Donne than by the esoteric paraphernalia of other disciplines. The sense of vanished relevance is a perennial source of anxiety for teachers of everything. Everywhere. But the myth that English is the last stronghold, the last outpost, of the humanities still persists. The point is not that English actually *is* more painful than, say, chemistry, biology, or Ancient Greek history, but that it ought not be painful at all.

Undergraduates expect English to be general, beautiful, vague, delightful, ever treating the large, the powerful and the important. Somewhere in the recess of their mind's eye they harbour the Arnoldian belief that English should search for "ever fresh knowledge." And they are dismally bored and made weary by the study of paraphernalia that is unable to produce one ounce of fresh knowledge.

All the trouble lies in the simple fact that students of English expect *this* subject to transcend the pettiness of others. Because the undergraduate studying English considers himself in some sense a "contemporary humanist"—as much as this is possible today—his real concern is with communication.

As I lecture on Donne and Pope I cannot help but sense the students' uneasiness. Their faces say, Donne and Pope are irrelevant to the *new* communication, and by this we do not mean crass, uncherished aural-visual-physical-sensation, or the cult of hyperstimuli, but rather the common truth of *Rhinoceros, Blow-up,* and Marshall McLuhan.

One very brilliant undergraduate at Harvard wrote me: "Undeceive us! Let the English Department abjure its unmerited aura of 'popularity,' and live with its own abysmal truth: then, counting the rings of Shakespeare's bathtub with precision would be no less honourable than measuring those of Newton's. Do not let us enrol our college years in the hopeless pursuit of a humanism that is no longer to be found in literature. Give us the new communication without false pretences."

A curious thing is that little of this is true of post-graduate students. They are, of course, "committed," older, and more sophisticated; and they usually have chosen the teaching of English as a profession. Unlike undergraduates, they deplore generalities. Thoroughly professional and resigned to the footnote aspect of their chosen vocation, they desire the very opposite: bathtubs and sinks are welcome, particularly since these help pave the way for the graduate student's own publications.

The fact that the Yale Walpole has reached volume 37 is of some importance and of tremendous interest to all. The graduate student greedily dreams of the Lehigh Longfellow or the Skidmore Skelton. There is no limit to his professional possibilities in a world where education has become a major industry and the teaching of English a commodity for many consumers. He even dreams of a Nobel given someday for "the Texas Twain."

But there, still lurking and searching, nineteen and probably neurotic, in the midst of the seeming chaos, is the brooding undergraduate, more intelligent, more demanding than ever before.

What To Do?

Since we are his teachers, his problems must in some sense be ours. It would, however, be disingenous of me to pretend that I have the solutions. I have no answers, and at best, hope for some awareness of the profundity of the problem. I write this not to pose solutions but to comprehend circumstances—expressions of ennui and intellectual fatigue.

I am a historical scholar, thoroughly persuaded that the combination of teaching and engaging in research in my field makes me content. Concerned with facts and ideas as well as the shape and tone of literary forms, I make no pretensions to revolutionize the study of literature.

At the beginning of each new term I tell my undergraduate students not to expect miracles or prophecies. I am not Cassandra. I tell them that I am basically a pedant, and that they should expect no more than intelligent footnotes on the literary works they are reading.

I tell them that the tenor of my mind is far closer to the scientist's than to that of certain incomprehensible and irrational critics of literature. That I feel defensive only towards undergraduate students of English not to third-year Ph.D. candidates or professional colleagues. That I wish the commodity I sell could be consumed with greater ease. Despite the wish, I am aware of the problem of relevance. Finally, that the subject, English literature from Beowulf to Virginia Woolf, must stand on its two feet if it is to remain an area of vital interest to hordes of undergraduates. That I shall not attempt to transform myself, Proteus-like, into a god, substituting, as it were, myself for the subject.

"The style is nothing less than the man himself" is a romantic notion coined over two hundred years ago by Buffon as applicable to literary texts only. It should not serve as a teacher's manual for classroom conduct.

Nor will I pervert the works themselves—Donne and Pope—to make them palatable. Pope must be read as Pope and not as Faulkner, or as Faulkner may have read and interpreted Pope. I know that if my menu contained more Faulkner and less Pope, more T.S. Eliot and less Donne, that the grimaces would be less severe, the intellectual fatigue less stringent.

But like the majority of my colleagues I still believe—perhaps blindly—that the record of the past is valuable; that literature of long ago is the record of man's past sufferings, and as such, delights and instructs us for our own lives. That the greatest literature I know is ethical and didactic, moral and religious, not realistic and titilating. Literature is not life.

All this I tell my students, but with the knowledge that somehow, somewhere, some aspect of the communication itself is barren. Somehow they still wish literature to be life: their own life.

In this country, where Youth is glamourized and idealized more than in any other country in the world, it is not strange that English literature hundreds of years old should be lacking the vital aspects of life that so greatly concern modern youth. And thus I whisper again and again to them: I understand, I understand.

To my older and perhaps more sober audiences, to my colleagues, I turn about and roar, English literature must somehow become revitalized and rehabilitated, if we, the educators, the interpreters to the young, are to maintain our integrity and honestly earn our bed and board.

THE ARTIST AND THE MACHINE

DOUGLAS M. DAVIS

Art has always borrowed from technology, says the author, but what distinguishes the present situation is the full partnership between artist and machine which has brought a missing sense of play into contemporary art. Art critic for "The National Observer," Mr. Davis is completing a book on "Art and Technology," to be published by Praeger in 1970. His article is excerpted from "Art in America."

TECHNOLOGY IS STEALING into art in so many ways, some seen, others unseen, that its progress literally escapes us. We feel its presence every time we stand before a sculptural object that buzzes or dances or lights up. Yet we lack a handle, lack a vocabulary to domesticate these phenomena.

We do not normally associate technology with comedy and joy, almost never with mystery. We associate it with the dry, the rational, the inhuman. When, in 1951, Lewis Mumford compared technology to the walls of a prison in *Art and Technics,* he spoke for a wide segment of sophisticated opinion. But an investigation of definitions reveals that man and technology are one, not two.

"Technology"—on the dictionary level—is the servant of "science," meaning an application of scientific theory to practical problems. On the simplest level, that application can mean, for the artist, nothing more or less than a new product like epoxy paint, or a new process, say the vacuum-forming used by Craig Kauffman to shape the plexiglas in his sculptural objects.

On a slightly higher level, "technology" can mean, as Donald Schon points out in *Technology and Change,* "*any* tool or technique, *any* product or process, *any* physical equipment or method of doing or making, by which human capability is extended".

Technology, in other words, is man's way of working, no less a part of him than his own brain or hands. Marshall McLuhan is therefore surely right when he calls technology an extension of the

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central nervous system.

The artist has always employed new tools and knowledge, though never so readily as now, when he haunts the factory as often as the museum. In the past the gap in time between the new product and its use in art was far wider. The Bauhaus, that influential school of design, was founded in Germany in 1919 partially to close that gap—and from it came such architects as Ludwig Mies van der Rohe, such painters as Joseph Albers, many of whom later settled in the United States.

The futurists and the constructivists, whose adherents numbered Russians as well as Western Europeans, were also consciously determined to make art out of the materials around them. It is because of their achievements that a contemporary artist like Larry Rivers can take the stand—in conversation and in his work—that it is as noble to make sculpture out of a light bulb as out of marble. "Michelangelo saw marble around him and worked with it," Rivers says. "I use electricity. What's the difference?"

The difference is one of degree, and not only because artists moved more slowly in the past. So did technology. Leonardo da Vinci actively sought new knowledge. He collaborated with the anatomist Marcantonio della Torre to learn what he needed to complete his great figure studies and drawings. His interest in pure technology was, of course, complete: he designed and in part constructed everything from field guns to flying machines.

A good argument can be made, in fact, that the Renaissance anticipated the new tendency to mix art and science. The men of the Renaissance seemed to lack both the Greek penchant for elevating pure thought (or art) above mere craft (or technology) and our own for glorifying specialized knowledge.

From Paints to Computers

Whatever the shape of aesthetic theory, technology has always left its imprint upon art. It has altered, quite radically, the nature of pigment, that last reserve of the traditionalist. Before 1700—and the maturation of chemistry as a science—few synthetics were in use, most pigments being "natural," like carbon black, coloured earth and certain natural metallic compounds. Since then, a number of colours—titanium white, Prussian blue, cobalt blue and a wide variety of yellows based on zinc, chromium and cadmium—have been added by chemistry to the painter's palette.

The development of synthetic, quick-drying acrylic paints since World War II has literally transformed the application of colour to canvas. They permit, to mention but one method, the wholesale "staining" of the canvas, which sinks the colour deep into the fibres, a process not possible with oil-based pigments. Acrylic paints are also among the most durable paints known.

Pop art and op art, as well as "colour painting," could not exist without modern technology. The very meaning of pop art is based on *how* it is done—by methods normally associated with commercial art and the machine, not the brush, that instrument of the lone, gifted genius. Op art is the child of optical science. And if we are seeing the beginnings of a renaissance in sculpture, it is entirely due to technology.

For centuries sculpture has been dominated by heavy materials like marble and bronze, both of which take considerable time to master and considerable expense to carve and cast. Today we live in a world of synthetic materials that are cheap, pliable and exciting to the sculptor: he can work directly with these materials in a way long denied him. "I can make anything now," says Chicago sculptor Mel Johnson. "I can make my pieces float, fly, suspend in the air or radiate odours."

The example of styrofoam, a soft, synthetic material, is proof in point. Styrofoam can be shaped or carved into the most complicated forms; then, as sculptor Calvin Albert recently discovered, a stream of molten metal magically turns the substance into metal. "The styrofoam melts, I think, upon contact with the heat of the molten metal," says Albert. "Foam casting" of this kind is widely employed and promises to increase as new foams are developed, along with the expertise needed to use them.

Young sculptors in California seem particularly open to the use of new materials and methods, perhaps because of the presence there of what are sometimes called "esoteric" industries, such as those involved with space technology.

In 1965 Piotr Kowalski joined with the North American Aviation Company to "form" a piece of sculptural metal by underwater explosion. Norman Zammitt's transparent plastic blocks, in which thin sheets of colour seem to be suspended, were a product of World War II airplane needs plus the artist's own ingenuity.

Larry Bell's "High Vacuum Optical Coating Machine," which lays an exquisitely thin coat of colour onto glass, grew out of a direct, practical need for precision in optics. Bell's glass "boxes," an art form based on this invention, reflect the subtlest patterns of light and colour.

The connection between technology and kinetic (or moving) sculpture is clear, too. Jean Tinguely, the most famous of the kinetic sculptors, is anti-machine in a wry, antic way, but certain of his colleagues evince an almost mystical positivism about the machine.

The German Nicholas Schoffer has said that he wants to "humanise" the machine, that he sees in technology a chance to "liberate" mankind. The sculpture of Charles Frazier, which dances, swims and flies, leaves the static world of the gallery behind.

Late in 1966, James Seawright exhibited at New York's Stable Gallery eight "electronic sculptures," some fixed, some moving, all devoted to the forms of circuitry—amplifiers, oscillators, digital computers, wires—all making a kind of beauty entirely proper to more static materials. On every level, these sculptors display a fascination with parts, wheels, sounds and movements peculiar to our time.

Music, Dance and Electronics

Avant-garde music is intimately involved with technology. For years John Cage has been composing works with radios, amplifiers, oscillators, contact microphones, even the sounds picked up by antennae from outer space. "Without the new tapes," composer Milton Babbitt has said, "electronic music could not exist."

Contemporary dance has its technological pioneers, too. Alwin Nikolais began to exploit light, as an independent medium and as an interacting agent with the dancer, at the Henry Street Playhouse in New York during the late 1950's. In Merce Cunningham's "Variations V" the dancers create their own sound accompaniment by moving near electronic poles that hum and buzz merrily in response.

In *The Two Cultures,* published in 1960, C.P. Snow, the British novelist and scientist, made much of the fact that "the literary culture" had little of practical use to give "the scientific culture," that, in effect, science was lord and master, art the follower. Now every new sign indicates the relationship is a good deal more complicated.

As Donald Schon demonstrates, the history of science is riddled with chance discoveries, discoveries that link science and art in a common irrationality. Calvin Albert's discovery of the uses of styrofoam is a perfect case in point of how an artist can come upon a physical truth by intuition and sheer need rather than by formal discipline—and his is not the only example.

We often hear from traditionalists that abstract painting is a flight from reality. But reality as it manifests itself to us now is hardly confined to the three-dimensional objects perceived by our naked eyes. We are told from birth that the building block of the universe is the (invisible) atom; we now see nature's minute forms through the photomicroscope and the spectrograph.

From earliest age the TV child watches images stream continuously before his eyes, images he neither fully understands nor relates one to another. Think of the multi-screen films demonstrated at Expo 67 in Montreal, of a multimedia discotheque, or the happening, where many events occur at once, in no apparent logical order.

Physics has further expanded our sensibilities. If the clock gave deism its perfect metaphor, substantiating a view of the universe ticking away in measured, mechanical time, 20th century physics has destroyed it. After Einstein, we have ceased in fact to believe in time. Both the new dance and the happening reflect this by ignoring measured time, the former by choreographing the body in a static state, the latter by stretching on interminably, sometimes for days.

A Radical Mutation

What past and present finally tell us about art and technology is that we are witnessing a radical mutation in an old relationship that has persisted through every kind of aesthetic change. Four strains seem differentiated at this hour, the first three clearly traditional in every sense.

There is the use by the artist of materials produced by recent technology. There is the use of tools and methods with the same derivation. There is the use of a new imagery suggested both by the tangible forms of technology and the revelations of science. And there is, finally, the full partnership between artist and machine in the creative process.

This changing relationship between technology and art has its enemies, honourable enemies, many of them deeply involved with contemporary work. They see technology as an alien, inhuman force; they associate its use in art with mere "gimmickry"; and they fear any surrender of control by the artist himself over the technological materials involved in his work.

But to oppose technology in art is to oppose it in life, for technology is as much a part of man as his home or his road or his clothes. In company with all these, technology is surely *non*human, but man alone can render it *in*human.

It is man alone, moreover, who reduces material of any kind to the level of gimmickry. There is nothing inherently superficial in a light bulb, as there is nothing inherently noble in pigments: oceans of oil have been wasted upon bad painting. It seems we must learn again that art can incorporate *any* material and *any* process, when employed in the service of the imagination.

That technology is a neutral, not a negative tool, is conceded by the best of the humanists, by those engaged in a rearguard defence of Western art and civilization against what they consider the excesses of the present, both in politics and in art. When Lewis Mumford, the dean of these guardians, compared technology to the walls of a prison, he also took pains to add that *we* built the walls, "even condemned ourselves to a life-term .... But those ... walls are not eternal."

On the difficult issue of "human control," however, the split between new and old is profound. It is no accident that the literary and critical establishments reserved their greatest scorn over so long a period for John Cage, who has distilled in his articles and lectures, as well as his music, the ideas most repellent to the humanists. They are ideas, moreover, that have been realized in the work of many artists, among them Robert Rauschenberg, Jasper Johns, Allan Kaprow, Robert Whitman, the choreographer Merce Cunnigham and a whole train of young composers.

The Role of Chance

When Cage recommends the use of chance methods in composition—the flipping of a coin to determine the order of sounds in music—on the ground that such procedure "brings us closer to nature in her manner of operation," he strikes at the root of Western aesthetics as it has been defined since the Renaissance. (To Mumford, for example, one of art's central tasks is to "arrest life in its perpetual flux" and move towards a "final perfection.")

Cage has not been the only influence on the movement described as neo-dada. Surrealism, Oriental philosophy, Marcel Duchamp, all have contributed. There are wide differences of approach between Cage and Duchamp, Rauschenberg and Kaprow, dada and surrealism, but the net effect of the work produced by them has been an erosion of the line between art and life.

The "found objects" in a combine by Rauschenberg turn us out towards the world, away from art, as do the "found sounds" in a Cage concert. When we perform in a happening, we perform as ourselves, not as created (and therefore arrested) characters.

Poetry, Mystery and Pleasure

It is only natural, then, that these artists—and all those influenced by them—should embrace technology with undisguised lust. For the machine offers the best of all roads away from the self and its inherent limitations.

Let the computer then provide us with tables of random numbers, let random sound waves light our dance, let the evening's television fare provide us with images for our large screens. The more independence we can cede the machine, from a Cagean point of view, the more interesting, indeed, the more fun, art becomes, for it takes forms no earthbound ego might imagine.

Recall that Billy Kluver concluded his preparatory remarks for "Nine Evenings: Theatre and Engineering" with a reference to the Chinese fireworks of three thousand years ago as "maybe the first use of advanced technology to give poetry, mystery and pleasure to the people. I feel that our performances will have some affinity to these long-forgotten forerunners."

If it is difficult for the humanist to endorse this position, he can—and must—come to terms with its historicity. There is not only the whole tradition of anti-art behind it, there are also certain analogous responses based so deeply in our sensibilities that they barely admit rational explanation.

When we play the machine for its own sake—and enjoy it on the same basis—we merely confirm on a new level a love for process itself (implicit in abstract expressionism) as well as for the found object. The abstract painters taught us to discard the search for illusion and for meaning in a canvas, to look upon form only as form, colour only as colour; it is a lesson transferable to computer graphics.

There is, however, a strong countercurrent on the issue of "control." Artists like Gyorgy Kepes and James Seawright shape light to their own ends in a perfectly orthodox, almost painterly fashion. And there are many artists drawn to technology because it permits *more,* not less control.

Countless composers, Milton Babbitt preeminent among them, have been attracted to electronic music primarily because it dispenses with the accident attendant on live performance. The giant "Synthesizer" constructed so lovingly at the Columbia-Princeton Electronic Music Centre during the postwar years provides the composer with the precise, immutable sounds he needs.

Choreographer Alwin Nikolais' energetic use of both electronic music and an imaginative, full play of light upon his dancers permits fuller control of the stage—and therefore the senses of the spectator. The latest turn in sculpture has been *towards* control, too, towards the use of industry by the artist as his production arm, a process reinvigorated in our time by minimal sculptor Donald Judd, who sends his plans to a metal fabricator in order to get the exact finish he wants.

The effect of all this work, whether aimed at total or lesser control, incontestably de-emphasizes the hand and therefore craft. I suspect that this is the final straw for the humanist.

Less Craft, More Play

Most of us expect the true artist to mix his own pigments. We still nourish the myth of the lone, romantic artist, sweating away in garret obscurity, chasing after meaning. We certainly have no preparation in song or story for a Donald Judd consigning work by phone to a company of factory hands. On this level, too, the humanist must give way or stand isolated.

Above all we must learn, it seems to me, both as audience and as critics, a new respect for play, or at least as much as we now give, no doubt rightly, to sobriety and craft. How deeply ironic it is to find the machine producing a sense of joy long absent from contemporary art. Dada, for all its antic moments, was at base bitter, war-weary; surrealism grounded itself in apocalyptic Freudianism; what abstract expressionism "expressed," over and over, was the intensity of the inner man.

When the humanists insist that the artist rise above "mere" play with technology, they reveal how little they have learned from contemporary philosophy, psychology and sociology about the importance of the play impulse to the shape of civilization itself. The philosopher Ludwig Wittgenstein finally concluded that language was a game. Even Sartre says that man is never more himself than when he plays.

It is then, in this completely nonfunctional moment that man best differentiates himself from the machine, not as master to servant but as human to nonhuman. The machine may outcontrol man in a functional sense; it can never outplay him.

I do not contend that the spirit of play wholly dominates our use of technology in art or that it should. It is but one component, if the most striking, in a vastly complicated fusion, one that includes fear and wonder and scepticism as well as play; but the more satisfying for all that, and heralding the only relationship possible for any of us now with society itself, a society that is bound far more closely to technology than art is. The old simplicities will not do, either in life or in art, and certainly not the one that disparages technology, bidding us to use it only as a servant.

TRADE UNIONISM GOES PUBLIC

EVERETT KASSALOW

The recent rapid growth of public unionism in the United States, says the author, raises some difficult questions about the role of professional employees in government decision-making. His article is abridged from "The Public Interest" and will be included in his forthcoming book, "The White Collar Worker."

A leading authority on international labour, Professor Kassalow of Wisconsin University is the author of "Trade Unions and Industrial Relations: An International Comparison." Formerly he was a director of research for the AFL-CIO (American Federation of Labour-Congress of Industrial Organizations).

STRIKES OF PUBLIC employees, once a novelty, are no longer unusual. During one three-month period, not so long ago, a casual check showed social workers' strikes in Chicago, Sacramento (California), and White Plains (New York); slowdowns of firefighters in Buffalo and of policemen in Detroit; strikes among maintenance employees at Ohio State University, Indiana University, and the University of Kansas Medical Centre; a three-day "heal-in" by the interns and resident doctors of the Boston City Hospital; "informational" picketing, with a strike threat, by the Philadelphia School Nurses Association; and teachers' strikes in a dozen communities across the country. All these occurred in occupations not traditionally identified with the labour movement in the United States.

Large-scale unionization of government workers is a relatively new phenomenon in this country, although it has been common in almost all other democratic industrial countries of the world. That large-scale public-employee unionism was also inevitable in the United States at some time is clear. But why now? What new forces account for the current upsurge of public unionism?

The first of these forces has been the institutionalization of trade unionism in American life. Unions date back more than 150 years in the United States. But

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large-scale unionism dates only from the late 1930's, and it has only been in the past decade or so that collective bargaining has become widely accepted as the appropriate way to settle wages and working issues. During this decade unionists have become respectable. Union leaders have been named to innumerable presidential commissions dealing with every conceivable problem area of the country's foreign and domestic business.

Public opinion surveys show that union officers have registered a significant gain in occupational prestige in the past two decades. This gain is clearly attributable to the widespread acceptance of the basic value of unionism in society, an acceptance now being transferred to public employees as well. For this reason, unionism among government workers has begun to advance rapidly, and there is every prospect it will continue to grow.

Government Encouragement

There is a second, more specific reason for the recent growth of government unionism, and this is Executive Order 10988 issued by President John F. Kennedy in January 1962, which encouraged unionism in the federal service. In its support of public unionism, this order was as clear and unequivocal as the Wagner Act of 1935 had been in its support for unions and collective bargaining in the private sector. It declared that "the efficient administration of the government and the well-being of employees require that orderly and constructive relationships be maintained between employee organizations and management."

President Kennedy's order has had a spillover effect in legitimating unionism in state and local public service. Indeed even earlier, orders issued by New York's mayor resulted in the "breakthrough" of unionism in 1961 among (the city's) 44,000 teachers. Further, the reapportionment of state legislatures—giving greater representation to urban areas—seems to have had a generally liberalizing effect, and a flow of new legislation in a dozen states has expedited public employee bargaining.

The enormous growth in public employment has itself acted to transform the status of the government worker. Between 1947 and 1967 the number of public employees more than doubled, from 5.5 million to 11.6 million. But it is interesting to note that, despite the traditional complaint about the growth of a "federal bureaucracy," the greatest rate and amount of increase was in state and local government—up 148 per cent to 8.9 million as contrasted to a 43 per cent rise in federal employment to a total of 2.7 million.

Clearly, the day has passed when being a civil servant is a special or prestigious status. At a time when unions and bargaining have become increasingly accepted elsewhere in the society, this expansion of public employment, with its consequent bureaucratization and depersonalization of relationships, has undoubtedly encouraged unionization in the public sector.

Unionizing Professionals

The spread of unionism among civil servants (and especially teachers) is a partial answer to the old question of whether substantial numbers of white-collar employees can be unionized. It is true that much of the growth of public unionism, principally the American Federation of State, County and Municipal Employees and the American Federation of Government Employees (which operates at the federal level) has been among blue-collar employees. (Over two-thirds of the AFL-CIO's State, County and Municipal Employees union, for example, are blue-collar workers.) But some important footholds have been gained among white-collar workers and professionals, with teachers the largest number unionized.

Between 20 and 25 per cent of all local and state employees are teachers, and it is among them that the significant contest in unionization has been taking place. The organization of teachers has had its impact not only in traditional union circles, but also among what were once largely professional associations of public service employees, such as the National Education Association (NEA). Under competitition from the AFL-CIO American Federation of Teachers (AFT), the NEA has radically altered its views on bargaining in recent years—even to the point of accepting strikes, where circumstances render them necessary.

Like the NEA, other independent state and local public employee associations, whose activities until recently had largely been limited to professional, welfare and fraternal programmes, are now turning their attention to collective bargaining. Strong among white-collar employees, these associations include, at the state level alone, over 400,000 members who, in turn, are loosely grouped into a national joint body.

As is clear from the many strikes reported, a great many different groups in the public sector are on the move. To the extent that one can judge, the new unrest seems to be greatest among those who have very clearly identifiable professions or strategic occupations. Teachers, for example, have been in the forefront of public employee labour agitation in the past few years.

Nurses have begun to make demands in the large cities. Social workers, a group with old traditions in public employee bargaining, are extending their organization significantly. Firemen and policemen have been revealing a new militancy. In their summer 1968 conventions the AFL-CIO's fireman's union and the independent American Nurses Association both removed clauses prohibiting strikes from their respective constitutions.

In contrast, such professional groups as engineers and architects (admittedly employed on a far smaller scale in the public sector than either teachers or nurses) are much less affected. These occupations continue to enjoy a generally more exclusive and favourable labour market than the other professionals, and this would seem to be a clue to the difference.

The sharp increase of union membership in the public service has far outpaced the slight increase in the private sector. Between 1956 and 1966, non-government membership rose only seven per cent, from 17,189,000 to 17,409,000; while government union membership nearly doubled, from 915,000 to 1,717,000, bringing it from five to nine per cent of total U.S. union membership.

Three public unions within the AFL-CIO have been in the forefront of this advance: the American Federation of Government Employees (AFGE), whose membership rose from 56,000 in 1956 to 300,000 in 1968; the American Federation of State, County, and Municipal Employees (AFSCME), which went from 147,000 to 400,000 in the same period; and the American Federation of Teachers (AFT), which rose from 48,000 to 175,000.

This rapid expansion has been accompanied by the sort of internal turmoil that usually goes with growth. Major conflicts for top union leadership positions have erupted in all three of these public employee unions during the past half dozen years. As membership rolls and treasuries expanded, moreover, and full-time elected and appointive posts opened up, struggles also occurred at the regional and local levels. With the prospect for continuing, substantial membership growth, we can expect relatively high instability and at least a fair amount of election conflict to continue among the officials of these unions.

We can also expect the leaders of the rapidly expanding public-employee unions to move into larger roles in the top councils of the AFL-CIO itself. Union size has always been a significant factor in the choice of the national federation's 29-member executive council. The State, County, and Municipal Workers Union is already among the ten largest unions in terms of membership size. The American Federation of Government Employees may also be close to that level by the 1970 convention. Apart from size, the AFL-CIO will also stand to benefit from a more representative public image when teachers and other government employee representatives help to make up its executive council.

Conflict with Public Management

The growth of unionism in the public sector has been so rapid that public management has found it difficult to assimilate it in recent years. Even with the best intentions, the process would pose problems to public managers who until recently have had complete authority in personnel matters, within civil service laws and regulations.

In many cases the older practices of benevolent paternalism persist, and new ideas about bargaining come slowly. Even though unionism has become accepted in every major industry, the personnel officers in government often have little notion of how to deal with a union, and episodes quaintly reminiscent of labour history 30 years ago frequently occur.

One federal union organizer describes his experience in dealing for the first time with an old line air-base personnel director. The union had only recently won its exclusive bargaining rights, and the organizer led his committee into a small personnel office. The director sat behind a small table and told the union committee to remain standing in the crowded office as it prepared to present its demands. The organizer refused to negotiate under these circumstances and eventually a larger office and a large table and sufficient chairs were found. Eventually, too, the old personnel director was eased out of his position. At various levels, this experience has been and will be repeated countless times before the new bargaining process takes hold.

The civil service commissions present the most fundamental problem. In the federal government, as well as in many states, these bodies have been the unilateral source of rules and regulations for government employees. In the first stages of the new unionism, these commissions have become the principal management authority.

But the commissions often serve both as employer and arbiter, and determine what groups of employees can or should be grouped together for bargaining purposes, or what the proper scope or area of this bargaining should be. In private unionism, an independent agency, the National Labour Relations Board, has been the arbiter of such questions, and it is unlikely that the government unions will allow the "employer" both to make such crucial determinations and also to bargain.

It is sometimes difficult to remember that one of the original reasons for the creation of civil service commissions was to protect the employees from political attack and insecurity of tenure. To trade unions, seeking to assert their rights and to modify old rules and regulations, the commissions now appear primarily as retrograde authority.

Several states have already acted to empower a separate new agency to certify unions, help select mediators and arbitrators, define union rights and protections, etc., and the federal government is seriously considering similar action.

Clearly, what most public employee unions want is their own version of the Wagner Act's National Labour Relations Board—to do for collective bargaining in the public sector what the NLRB did for the private sector in the 1930's. Civil Service Commissions just don't fit that picture, and many are likely to be phased out of this new area of public administration.

Debate over Strikes

No subject in recent years has provoked as much heat as the matter of strikes among public employees. It is probably the most difficult problem in the public employee field. Even expert arbitrators and mediators, men of hard-headed, pragmatic experience, have taken surprisingly rigid, ideological positions on this matter.

Curiously, the issue is being debated as though the American experience was unique. But the fact is that many other countries have faced the same problem, and a wide range of solutions has been tried. Some countries have substituted compulsory arbitration for the right to strike, thereby presumably offering the unions a fair alternative to break "impasse" situations. Other countries have widely conceded public employees the right to strike, though a few groups such as policemen, firemen, or the military may be excepted by law or voluntary agreement.

Before taking a hard and arbitrary position, it is well to put strikes in a proper perspective. Over the past two decades or so, strikes in the United States have generally been declining. Occasional upsurges occur, particularly during periods of war or defence-induced inflation, but generally the number of strikes have declined as union-management relations have matured.

There is good reason to believe that, once the organizing phase is over, public employee unions will prove even less strike-prone than those in private industry. For one thing, working conditions are generally more secure and often more pleasant and less onerous than in private industry. For this reason it is important to note that as unionism and the bargaining process are extended for the first time to millions of new employees and new institutions (public agencies), considerable friction and tension will occur. The very inexperience of the new union leaders and the public managers guarantees this. But neither should the historic trajectory of unionism be ignored.

Transition Period

Admittedly, in today's transition period, most cities or states are not likely to concede the right to strike to public employees. However, rather than setting forth elaborate punishment systems for strikes which may occur, it is to be hoped that officials will take positive steps, wherever possible, to improve relations.

It does not seem that the strike issue will be important in *federal* labour-management relationships. A liberal managerial policy, including important wage and benefit improvements in the past decade, has set a good framework. In his recent appearance before a special government committee reviewing experience to date under the 1962 Federal Executive Order encouraging unionism in the federal service, AFL-CIO President George Meany concluded that the order "has brought significant improvements in labour relations within the federal government."

Although Meany recommended a number of changes in the workings of the new system, he did not question the legislative ban on strikes in the federal service. Nor did the AFL-CIO December 1967 convention resolution on federal employee bargaining say anything about the existing legal prohibition on strikes by federal government employees. Most of the unions which deal with federal employees have a voluntary strike ban provision in their constitutions.

At the state and local level, where organizing has met with more resistance, the strike issue remains more troublesome. Even here, in the words of the president of the AFSCME, which defends the right to strike, at least:

> "The debate (now) seems to centre around the right to strike, rather than the right to organize and bargain.... It seems only yesterday...that the right to bargain was at stake.... Now the right to strike is what is being discussed.... As painful as the situation is at times, it is an important step forward."

Areas of Collective Bargaining

It is clear that bargaining in the public sector has to be viewed as an evolving process. What might seem to be best today, is likely to be obsolete tomorrow. The first written agreement between General Motors Corporation and the United Automobile Workers Union signed some 30 years ago was a one-page memorandum. Twenty-five years later it was a printed contract running over 200 printed pages.

At present, general wage and hour conditions are not subject to negotiations in most public employee bargaining relationships. Both in the case of federal civil servants and a large proportion of state and local employees, these matters are reserved to the legislators.

It is difficult to believe that public employees, once their unions are established, will be content with a situation in which bargaining over the most basic issues is outside their purview. The general management attitude that, "We can talk about individual workers' problems, or the lights or noise in this room, but general wages and hours are out—left solely to the legislature," won't go down well.

The bitter struggles by management against union organization which were part of the beginnings of unionism almost everywhere in the private sector, have little counterpart in the upsurge of public unionism today. (Some Southern states and a few Northern cities where very difficult urban racial factors severely complicate labour relations are exceptions. New York City's 1968 teachers' strike, for example, was more a product of racial tensions than a traditional labour relations problem). From this new start a potentially far more cooperative relationship is possible.

In the present era there is probably an unparalleled opportunity to make public employee union-management relationships something new and unique in American labour history. There has been an important scaling upward of educational attainments in the past 20 years. As a result of this and other factors, one finds, especially among many of the white collar employees, a growing desire for wider participation in the decision-making processes.

If public managers turn their thoughts towards how to *widen,* rather than limit, the scope of management-union relationships, to embrace serious consultation with their employees on policy matters and the organization of their agencies, all sorts of new possibilities may be opened. The public sector may provide a useful training ground for what in other countries has been variously termed co-determination, joint-consultation, or workers' participation in management.

Obviously these possibilities vary from agency to agency and from union to union, and there may be greater possibilities in state and local service than at the federal level. But the potentialities for new types of relationships based as much, and possibly more, on cooperative rather than conflicting interests are formidable in the public service. As yet, however, most public managers have been more fearful than expansive in their reactions to the "new unionism."

New Forms of Participation

The demands of many professional employees, most notably teachers and nurses, have from the very beginning gone far beyond wages and hours. Their very professionalism turns them to the substantive policy questions affecting the agencies that employ them. Curriculum content, the size of classes, the organization of the educational system—these and other matters run to the heart of a teacher's interests, and one can list similar professional areas for nurses.

In the long run, indeed, if public managers do carry forward the process of enlarging the scope of union-management relationships, the unions might find it difficult to depend upon traditional union member loyalty patterns and appeals. The increasing professionalization of society may be the beginning of a new kind of role for organized labour, not the guild socialism once proposed by G.D.H. Cole, but some new form of participation in authority.

That is one of the aspects of what Daniel Bell has called the "post-industrial" society, the coming of a new society in which professionalization becomes the commonplace mark of skilled employment. A large-scale society of professionals inevitably means a reduction of that status. But it also means the upgrading of an older worker status, and this adds to the importance of the sweeping new public employee unionism in the United States.

‘THE BODY MAKES THE MINDE’

STANLEY BURNSHAW

Stanley Burnshaw is the author of "The Poem Itself" and of two books of verse, "Early and Late Testament" and "Caged in an Animal's Mind." This article is part of a book, "The Seamless Web," which Mr. Burnshaw is preparing for publication. The title, "The Body Makes the Minde," comes from John Donne's "Paradoxes and Problemes, XI."

To " ‘LOOK INTO OUR HEARTS AND WRITE,’ " says T.S. Eliot, "is not looking deep enough; Racine or Donne looked into a good deal more than the heart. One must look into the cerebral cortex, the nervous system, the digestive tracts."

Within his enclosing skin, each man is an interior sea. And, like the ocean itself, this invisible world contains "all of us that is *alive*"—the enormous multitudes of microcosmic living elements (cells) that compose our muscles, glands, brains, nerves and other structures.

"All of us that is alive" are water inhabitants, inhabitants of a fluid matrix. Whenever danger of its loss arises, agencies within the body act swiftly to reduce the danger.

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A century ago the French physiologist Claude Bernard declared that "the stability of the interior environment is the essential condition of free and independent life." *"All the vital mechanisms,* however varied they may be, *have only one object: that of preserving constant the conditions of life in the interior environment."*

No more pregnant sentence was ever framed by a physiologist, said Haldane. No more inspiriting enlargement of such a conception could be desired than that of Dr. Walter B. Cannon.

Drawn from firsthand laboratory experiences, Cannon's *The Wisdom of the Body* often reads like a book of marvels:

> When we consider the extreme instability of our bodily structure...its persistence through many decades seems almost miraculous. The wonder increases when we realize that the system

> is open, engaging in free exchange with the outside world, and that the structure itself is not permanent but is being continuously built up again by processes of repair.

The astonishing fact is that

> Organisms have somehow learned the methods of maintaining constancy and keeping steady in the presence of conditions which might reasonably be expected to prove profoundly disturbing.
> If changes threaten, indicators at once signal the danger, and corrective agencies promptly prevent the disturbance or restore the normal balance when it has been disturbed.
> The corrective agencies act, in the main, through a special portion of the nervous system which functions as a regulatory mechanism.

By storing and releasing material supplies, by altering the rate of continuous processes, by mobilizing natural defences against injury—all within a very wide margin of safety—the normal human organism protects itself for decades against perturbations. The agency responsible for preserving this homeostasis, for protecting the cells in all their parts whether from within or from without, is the controlled fluid matrix (water modified by the addition of salt and thickened by an albuminous or colloid material).

For Free and Independent Life

To read through Cannon's volume is to discover not only unimagined complexities of the world within each man, woman and child but also specific ways in which it acts to maintain the balance essential for continuing existence—in Bernard's language, for "free and independent life."

How, for example, it assures constancy of the water content in the blood; of the salt content; of the blood sugar; of the blood proteins; of an adequate supply of oxygen (which it cannot store as it can food and water). How, in the face of enormous variations both within and without, it achieves constant body temperature. In some organs, one is surprised to learn, the margin of safety drawn on in emergency situations can amount to five, ten, even fifteen times the quantity actually needed.

Perhaps most impressive of all is the part played by the sympathetic division of the autonomic system, which goes about its work *independently of voluntary thought,* since every change in the outer world, in fact every considerable move in relation to the outer world, demands undelayed processes in our inner world.

At the very beginning of a disturbance, sentinels (automatic indicators) set the corrective processes into operation without otherwise being told to do so:

> If the blood pressure falls and the necessary oxygen supply is jeopardized, delicate nerve endings in carotid sinus send messages to the vasomotor centres and the pressure is raised. If by vigorous muscular movements blood is returned to the heart in great volume, so that cardiac action might be embarrassed and the circulation checked, again delicate nerve endings are affected and a call goes from the right auricle,

> which results in speeding up the heart rate and thereby hastening the blood flow....

All such processes go on by themselves. We are not even vaguely aware of most of them—for the good reason that the organism cannot afford to wait for voluntary decisions from the brain if it is to maintain the requisite stability in relation to both internal and external worlds.

On the contrary, it is precisely what these processes do on their own initiative that frees the higher centres of the brain to go about their particular interests, in a quite different mode of "thought." If "higher" and "lower" as applied to thought structures denote only complexity and distance from the ground, a revision seems in order in our notions of human wisdom.

As the last few paragraphs suggest, the bodily processes responsible for assuring the organism's security discharge their tasks through most remarkable modes of response. For swift and exact knowledge of when to begin, what to do, and when to stop, the cleverest brain would be hard put to match this lower body's wisdom.

Numberless are the world's wonders,
but none
More wonderful than man

cries the chorus in the great ode of *Antigone,* celebrating man's highest thought "rapid as air," his "clear intelligence, force beyond measure." But among the wonders he possesses, what outrivals his unsung inner sea that guards the gift of his life?

No one can understand the organism's response to a disturbance without being impressed by a magisterial fact: both brain and "body" do whatever they can to dispose of it quickly—a thought, rarefied air, a bleeding blood vessel. The brain, when its rhythmical unison is broken by an upsetting idea, at once activates its resources so that it can return to its synchronous beating.

The fluid matrix, when something disturbs its balance, moves its processes in the same direction of stability. To be thus peaceably at one with the worlds within and without is the guiding dream of the organism, the goal toward which it strives in all its parts and as a whole.

Because this ideal state of internal constancy cannot always be attained, the organism learns both to adapt itself and to maintain adaptedness against the pressures of ever-changing environments. Physiological and biochemical homeostases do not, however, account for all the processes through which man's organism responds adaptively. The world is still ignorant of how these unknowns operate; perhaps it will never find out.

'Talents' of the Body

Meanwhile other "talents" have emerged that suggest how much more might be learned about human nature.

One scientist brings evidence for a remarkable sensitivity of the skin even to speech. Another finds "a differential effect of colours" to be not limited to the eye but also holding for light stimulation of the skin in general, although to a much smaller degree (green and blue leading to a changed position of the arms in the direction opposite from that induced by yellow or red).

A number of blind people under study accurately assess not only the distance of objects in their environment but also the size and the composition. Will a built-in sense of distance eventually prove to be latent in the sighted as well?

What of the "eyeless vision" extensively studied by Soviet scholars?—of the reputed ability of one of their citizens to distinguish colours through her fingertips?—of the Michigan housewife with seemingly comparable skill?...

Enough unanticipated phenomena have been encountered to start what one psychologist calls "a renaissance of interest in the role of kinesic and paralinguistic information as it contributes to the total process of communication." Both studies—the first, of bodily movements relevant for transmitting information (such as gestures); the second, of vocal behaviours (such as tone of voice) having similar relevance—belong to the larger field of "semiotics," now being subjected to research.

Not an hour of scientific training, however, is needed for identifying modes of "phatic" communication—those manifestations that convey information about a person's physiological or emotional state. As Weston La Barre remarks in *The Human Animal:*

> Many mere males have noted in bewilderment the acute phatic prescience of a mother when her child is concerned. She somehow knows when it is hungry and when it has had enough; when it is thirsty and when it is soiled; when it is tired, ill, or merely in a bad temper. Close emotional concern, endlessly repeated contexts, the infant's idiosyncrasies of expression, and the mother's own organic receptors all give her a large and continuing intelligence about the child. The phatic closeness of lovers also commonly reaches fantastic extremes of precision....(The) great social burden that even phatic verbalization still bears in humans is quite enormous.

The startling extent to which silent gestures and cues can replace verbal communication came to light sixty years ago when a German psychologist set out to explain the feats of Clever Hans, the famous horse belonging to a Mr. von Osten. Hans had apparently mastered the cardinal numbers from one to one hundred and the ordinals at least to ten, but this skill was the least of his accomplishments. He could also add, subtract, divide and multiply with integers and fractions.

He could tell time to the minute, count the windows on distant houses, the number of street urchins climbing on the neighbourhood roofs, and so on. He also had musical gifts, including absolute pitch and the ability to tell whether two tones simultaneously sounded made a third or a fifth. Hans had been trained by his owner to convert his replies into numbers and to tap them out with his foot, even when questions were written down on pieces of cardboard.

An investigating committee of thirteen trained observers certified, after observing Hans in action, that the horse had not received any signs or cues from anyone. The conditions, in fact, precluded trickery.

One investigator, Oskar Pfungst,

found not only that Hans was clever but that his performance did not depend on his trainer's presence since virtually anyone could ask him a question and very probably receive the correct response. But it was only after altering the conditions between questioner and horse that Pfungst could begin to see what was passing between them.

A slight forward inclination of the questioner's head gave the signal for Hans to start tapping whether a question had been asked or not, and the rate of tapping seemed to depend on the angle of the questioner's head. When Hans reached the right number of taps, the questioner tended to straighten up, thereby providing Hans with the cue to stop.

The horse proved sensitive to the most minute upward motions of the head —even a raising of eyebrows or a dilation of nostrils could stop him from tapping. Pfungst was able to demonstrate that anybody could start Hans's tapping and that anyone else could stop it merely by employing these cues.

The most unexpected among the findings came not from the response of the horse but from the behaviour of the questioners. Even after he had thoroughly mastered the system, Pfungst discovered that despite his efforts to withhold them he was continuing to give signals to Hans.

In order to verify his explanation of the horse's performances, Pfungst set up a new experiment. He took the part of Hans and invited other people to ask questions, to which Pfungst-as-Hans would now tap out the answers. Of the twenty-five questioners, twenty-three unintentionally gave cues. None had been told what was being investigated and one of them, a trained psychologist, was unable to discover how he was sending out signals.

A number of related experiments have been made. Although some failed to locate the precise elements in the communication system, all have been explained on the same theory: that subjects are able to perceive subtle nonverbal cues at levels ordinarily found to lie below the threshold.

As Robert Rosenthal sums up the entire phenomenon (in a new edition of *Clever Hans*), Pfungst's findings as well as subsequent ones "may be interpreted to mean that not only does the experimenter unknowingly evoke expected responses from his subject but that the subject also unwittingly evokes appropriate cues from his experimenter."

The body not only can "speak" without depending on words or other sounds but its urge to communicate tends to be too powerful to be checked by the will. One body can "speak" to another body and be "heard" even when the speaker is deprived of his full expressive means, of voice and ear.

What we have been watching here holds a new dimension of the involuntary processes. If the communicative behaviour of the "exterior" organism points to more than the "interior" body wisdom adduced by Cannon, it is because of the difference in occasion. No threat to the body's integrity is involved. The insistence on communicating that underlies the behaviour of the signalling "speaker" does not rise out of any immediate need for preserving his organism, although the need it fulfils may, in the long terms of creature survival, be just as great.

One cannot, in this general connection, help recalling what Pierre Janet remarked about human thought: that it "is not the function of any particular organ"; that "the brain is only a switchboard." The senses, to take only one set of structures, edit their messages before the latter reach the brain.

The eye, for example, sees not points of light, for it is arranged to read the shape of things into what it sees. As J. Bronowski puts it, "the sense impressions do not come to the brain as blank signals, but as elaborately pre-arranged and biased messages." "A single nerve fibre... does not so much inform the brain as instruct it, by sorting its messages in advance...by judging for itself what is irrelevant and discarding it, without leave from the brain."

Long before the investigations were undertaken that made this statement possible, Janet had declared that "we think as much with our hands as with our brains, we think with our stomachs, we think with everything." We cannot think otherwise, each of us being the organism that he is, carrying on a variety of behaviours for sustaining existence, many of which never reach into our level of awareness.

'We Are Being Thought'

From what has been brought into view in the foregoing several pages, it is certain that much of the time we are being thought. Reflexivity is the only language we possess for suggesting the ways by which the organism and its environment maintain their existence without the aid of what we call a directing consciousness.

Creature and world flow into each other on their own, without need of commands. Left to themselves, each gives and takes what it needs. And living as we do in dependence upon processes that guard and maintain our existence, we might well regard the relationship as a kind of mystical exchange; for this is the picture that the descriptions ultimately reveal. Much of the time, perhaps most, we are being lived.

"A man is born into the world with his own pair of eyes, and he is not at all responsible for his vision," wrote Stephen Crane, who then went on to burden him with responsibility "for the quality of his personal honesty."

The extended implication—that everyone is "responsible" for what he makes of the capacities he was born with—seems unarguable. It is that, indeed, and imperatively more to British and American theorists, most of whom would dispense with all notions of the "innate."

In contrast, their European colleagues cling to "genetic endowment." And they put forth powerful arguments for assuming (as one of them phrases it) that "certain mechanisms of behaviour must themselves be refractory to any modificatory changes for the simple reason that they do contain the phylogenetic programming of learning processes."

Not that they would disagree, for example, with the assumptions in Camus's remark that "After a certain age every man is responsible for his face." Their experiences, rather, compel them to insist that even before an entity of protoplasm first encounters society, its responses will have been predetermined to a significant degree.

I have not encountered any possible reason for doubting that the genetic uniqueness of every newborn organism makes for differences in response and *consequently* for differences in development—emotional, mental, physiological, whatever aspect be considered. This does not mean, however, that the organism can long continue to respond with the full capacities with which it was born. On the contrary, from the very beginning (in the womb) some are inhibited, others diminished, yet others lost in the natural courses of interaction with an environment that presses and modifies.

Hence the organism comes to respond with the functional remnant of its original totality—the remnant made functional within the influences and accidents of all it encounters. Since for each person these are as unique as his genetic endowment when he enters the world, the nature of Crane's and Camus's "responsibility" changes: from a solidly based demand to an ethic conventionally fashioned of stern as-ifs.

Any composite of "a person" that is faithful must glow with elements conveniently ignored by our habit of making each "I" the master of all it was given. For the organism, participating in every action and reaction, working towards continuously stable interchange with its environments, and driving to dispose of whatever disrupts its balance, always proceeds *as an entirety* "on its own," regardless of what may be happening in the structure usually looked upon as its director.

Which is to say, its brain, although "the brain" is itself composed of a number of structures some of which think by themselves (spinal cord, medulla oblongata, cerebellum, hypothalamus). Only in one small area, the six inches of the cerebral cortex, can be found the type of thinking we describe as voluntary—and this thinking, like every other event in the universe that is the person, is a bodily process.

How can such a material event be converted into an idea? Stimuli produce biochemical changes that give rise to nerve impulses that, in their turn, produce specific responses—so runs the current explanation. Although this general picture will possibly be replaced by another, we may remain sure that in normal human beings the sequence will always be the same as the outcome in thought will always differ.

So each person, as he grows and learns and changes, makes his own ways of thinking out of the functional remnant of the capacities he was born with *and* out of all that his organism encounters. Or if one prefers, each person is a unique constitutional entirety only some aspects of which become available for others to behold.

What is Creativity?

What, then, can be said of creativity? (The very question reflects what the biologist J. Z. Young remarked of the way each person organizes his brain. Westerners look at once for causal relations. Since it lies at the basis of our science and reason, we do not question causality itself, as others whose brains have been differently organized would do.)

Like anyone else, a creative artist inhales the surrounding world and exhales it. Whatever is taken in is given back in altered condition or transformed into matter, action, feeling, thought. And in the case of creative persons, an additional exhalation: in the form of words or sounds or shapes capable of acting upon others with the force of an object alive in their surrounding worlds.

Such an object arises out of characteristic cycles of accumulation and release. At certain moments, words or sounds or shapes demand escape from the creative person. The organism becomes burdened. When it cannot find relief, it becomes literally over-burdened.

The interruption in the cycle produces an overaccumulation, a dysfunction of the organism, which manifests itself in a variety of states, from vague excitement or tension and irritability, to malaise, severe discomfort, even pain. (Frost speaks of "lovesickness"; Schiller, Eliot, of "burden"; Byron of "rage.")

Persons other than artists may, of course, go through similar cycles. But with a poet the accumulation becomes associated and involved with a specific kind of verbal expression that affords relief.

He may accumulate and release poems throughout his life; for a limited period or periods, regularly, irregularly; he may stop for years, then resume writing, or never resume writing. The pattern of any single poet has no significance within the total view of a unique psychophysical constitution that cannot maintain normal balance without discharging the burdens it accumulates periodically.

The poet must get the disturbance out of his system to enable it to regain the requisite stability in relation to its surrounding world until the next disturbances accumulate and reach for release. This is his normal mode of functioning, for which he deserves neither credit nor blame. Within the mass of humanity, he belongs to the creature subtype which quite literally must ex-press that which builds up within.

So it appears when viewed simply as animal behaviour. Creativity consists of one more cyclic excretion of the organism, having nothing to do with aesthetic goodness or badness. It has only to do with constitutional need which discharges itself into what becomes a thing we call art.

Such an approach has the virtue of clearing the way for a new context in which to view creative "temperament" both with and without the eye of scientists. For while they keep repeating how little has been discovered of human thinking as detailed inter-reactions, they take for granted its involvement with individual biochemistry. And they are able to predict outcomes of interfering with normal biochemical arrangements.

Meanwhile, some experiments with nonhuman animals have produced impressive responses as a consequence, in one instance, of altering the organism, and, in another, of altering the environment.

Representative of the first is the work of James L. McGaugh with some of the various drugs that facilitate learning. For example, an optimal dosage of metrazol, when injected into the brains of mice, was shown to produce a forty per cent improvement in learning ability. Not that specific effects were predictably the same. Quite the contrary. In some subjects, it altered "attentiveness," in others, the capacity to vary the attack on a problem; in still others, persistence, or immediate memory, or long-term memory.

"Different drugs work differently for different strains, different individuals, different intellectual tasks, and different learning components"—the comment comes from David Krech. Taking what may seem a complementary approach, he and his colleagues have been studying the effects of "enriched" versus "impoverished" educational environments on the brain of the rat.

In accordance with their expectations, not only did the cortex of the stimulated subjects (as compared with that of their fellows) expand and grow deeper and heavier. The postulated chemical changes also occurred, showing increased levels of activity in two enzymes.

What these experiments may signify for our view of creativity cannot, I think, be dismissed. And, surely, instead of consigning it to the dustbin of irrelevance, one does better to consider two resounding facts: that not a single rodent family has become extinct since the first appearance in Eocene times; and that the rat operates basically with the same methods that are used by man.

In any event, the investigations make clear that whatever interference can achieve—from without (by the action of environment) or from within (by the action of drugs)—must depend on the constitution of the specific brain that is being stimulated. It depends, that is, on specific chemical status—on constitutional uniqueness.

As to whether analogous changes in human thinking are possible, for answering this question we have at least hints—negative, positive and uncertain. We know, for example, when something obvious is lacking in the organism—when a child is born with a body that cannot produce a specific enzyme. Abnormal substances accumulate, mental deficiency follows.

We also know when something obvious is added to the organism—when a substance is taken into the body that interferes with a specific enzyme. Abnormal substances accumulate, mental "magnification" follows.

Finally, we know that the body itself can produce biochemical changes that lead the brain into abnormal-supernormal activity.

In all three cases, the outcome depends on the specific chemical status of the person who is observed—and what does specific chemical status depend on but the "twofold matter" of genetic endowment and functional remnant of the original totality— the remnant made functional (as noted earlier) within the the influence and actions of all it encounters?

A Matter of Degree

One could say that this twofold matter "describes" the creative temperament if it did not equally describe every other kind. Its comprehensiveness, however, has worth, for it points to creative difference as one of degree that, in its largeness, distinguishes the artist as a type.

His twofold matter has indeed developed into behaviours that set him apart— the cycle of burden and release, the ability-and-need to transform the world he inhales into objects that act upon others with strange forces of thought and feeling.

What potentialities he began with at birth and how they were fostered as he grew, remain unknowable, although it is easy to believe that the first in some measure forms a part of every human birthright.

If in his case it was present in vastly greater amounts than in most others, then artists are surely born. If, however, in the course of his development, the extent and nature of the original capacity was shaped by what it experienced, then artists are surely made.

In this view, all artists are born *and* made—and both by the workings of chance, which re-covers these plain phenomena under the same sure mystery they had and will always have. Although some poets stumble on ways for releasing their creativeness, they cannot alter the fate that gave one more or less potentiality than another, as they cannot select for themselves the crucial early and subsequent influences that would foster best the gift they were born with.

And to all these reasonings in terms of amount and extent, must be added that other unknowable that gives to the work of each authentic poet its cachet, setting Goethe apart from Holderlin, Hardy from Eliot, Horace from Catullus.

Similarly, these reasonings say nothing of literary excellence or of why such a thing as creativity has had to evolve. But at this point the former would lead us away on a sidetrack and the latter would force us to write improbable volumes.

We do better to question the passivity underlying the simplified explanations attempted in the paragraphs above. Nothing more need be said of endowment or intrauterine influence since both (as of now, at least) stand beyond reach.

It is the seeming determinism of all that ensues that may be questioned. But if poets are very much made in the course of their experiences, this making involves the identical twofold direction that controls all other makings of the human organism—the ways in which we organize our brains, our habits, our gestures, our other selves. The verbs, whether active or passive, bespeak interreaction.

Nevertheless, a very great part of all that is associated with creativity bears the certain mark of involuntariness.

The fact has been recognized for centuries by poets and others, some of whom have viewed it with acceptance mixed with desperation. In any event, as it responds to the forces surrounding it, the action characteristic of the creative self is a reflex.

Although, as J.B.S. Haldane points out, "Reflex, drive, and purpose shade into one another in men," many writers emphasize the reflexivity of creative processes. "My thought thinks itself," says Mallarme. "What a delight to drown one's gaze in the immensity of the sky and sea....all those things think through me, or I through them (for in the vastness of reverie, the I quickly loses itself)," says Baudelaire. "One no longer dreams, one is dreamed," says Henri Michaux eighty years later. Or, as we put it today, "I do not write, I am written."

Who, then, is doing the writing?

The question must in part be meaningless if "awareness" (which implies a directing agent) is, as many are convinced, no more than a construct of human brains: an assumption we have taught ourselves to make as part of the picture we compose of ourselves.

Certain brain scientists tell us that the "reticular activating system (an arrangement of interconnected nerve cells in the brain stem) is the source of a special pattern of electrochemical nerve impulses that must be *received* by the brain if we are to be aware of what is going on."

This system, then, can regulate degrees of awareness; but what regulates the system and determines its action? Apparently at the very moment when our attention is engaged by one phenomenon, a second will come along and seize our attention, making us far more aware of its presence than of the first. Why? Because, says Dean E. Wooldridge, "the appearance of an object of overriding interest generates a new electric signal that serves to turn down 'volume control' of the nerve system registering an object of lesser interest."

Change in awareness, it would seem, is something that *happens to the brain* as a result of change in stimulation. Attention, awareness, is "turned on, high" by something that commands one's attention by reason of its "overriding interest."

The stimulus-object forces itself upon us literally seizing our attention. Rather than that we can always select from a field of stimuli, certain among them impose their presence upon us and fill up our awareness. Objects, events in the surrounding world can speak to us and make us heed.

But is all awareness involuntary? The notion seems absurd. From our experience we feel convinced that at least much of the time we can wilfully focus thought and when attention wanders, bring it back and hold it there—perhaps even when something of greater interest appears.

Chemists of the brain may be able in their terms to prove this false, but the brains we have created for ourselves think otherwise. And while we live, we proceed by the rules of our brains—as we must, being also their creatures.

As one of them, I have no difficulty in believing that I am being thought most of the time; that my attention is being directed; that only in between such moments do I find myself focussing my thought.

For except at such an instant as this one, I do not think about how I think, nor stop to ask what is voluntary, what involuntary, or how the two processes shuttle back and forth. When I stop to behold what is occurring, I realize that they must, my organism being what and as it is. I know when, as a consequence of forcing, my brain has added up a column of figures and when, by no effort, it goes its own way in reverie. I know when my mind, deeply absorbed, has suddenly been pulled away by a flash of thought.

What kind of "I" is implied here? It obviously has nothing in common with the stereotyped notion of a directing agent in steady charge of all the activities of the organism and responsible for its action. On the contrary, much—perhaps most—of the time this thinking "I" is reflexive. How else account for what takes place when "I happen to think of an idea," when a thought "occurs to me," when a notion "comes into my head" as constantly happens?

But even such an "I" may be unreal, only a manner of speaking—something we have taught ourselves to assume in order to be able to discuss ourselves. "We use the convention," says Young, "that placed in some way within us there is an agent who is said to act as we describe other men acting. This habit of postulating active creatures within bodies, the habit of animism," is directly traceable to the ways in which we have organized our brains—as indeed it must be—and for all its convenience in communicating, we might perhaps be better off without it.

But as Young says elsewhere:

> However much we learn later, we probably never lose the modes of receiving information and acting upon it that were appropriate to our earliest communications. When we were babies the human face was the all-important source of welfare, and all actions in the world around us came to be described according to it. Perhaps none of us can completely escape this fundamental source of animism because it is the way in which our brains must work.

There is obviously much more to be learned even of this limited facet of the subject and, by implication, vastly more than is considered even in *Brain and Conscious Experience*, the compendious record of a worldwide symposium held at the Pontificia Academia Scientiarum a few years ago.

For consciousness involves "the one great philosophical question that embraces all others"—as Erwin Schrodinger says—the one that Plotinus expressed by his brief *Who are we?* But have we any right, asks another philosopher-scientist, "to expect a solution to such fundamental problems when the efforts made have been trivial relative to the extreme nature of the problem?" It is easy to forget that human impotence before baffling questions does not cancel out their existence.

BOOK WORLD

ALFRED KAZIN: ON NATIVE GROUNDS

Reviewed by Sujit Mukherjee of the University of Poona

The continuing value of this book which was first published in 1942 lies in its method, according to Professor Sujit Mukherjee whose review of the latest edition is printed here with his permission.

A QUARTER CENTURY later than and half the world away from the first appearance of Alfred Kazin's *On Native Grounds*, it is difficult to imagine the original impact of this book upon its contemporaries. But neither time nor distance can erase the fact that this work is a classic of that genre of writing which has flourished more in America than in other countries—namely, literary history (as distinct from the older and more familiar tradition, history of literature).

Ever since Van Wyck Brooks' *America's Coming of Age* (1915) showed the way, Americans have learnt to grasp their entire literary record and scrutinize it in a variety of ways. From V.L. Parrington's *Main Currents in American Thought* (1927-30) to Howard Mumford Jones' *O Strange New World* (1963), we have a number of notable achievements in the reading and measuring of American literature within changing and original frames of reference. *On Native Grounds* belongs very much to this energetic tradition and stands up well in a distinguished company.

The book was first published in 1942; a slightly abridged version appeared in 1956 with a 'postcript' bringing the study up to date. Subtitled "An Interpretation of Modern Prose Literature," the work keeps in focus the major American writers of prose fiction from William Dean Howells (d. 1920) to Thomas Wolfe (d. 1939), but surrounds the creative writing with other significant prose of the period ranging from Thorstein Veblen of *The Theory of Leisure Class* fame to Edmund Wilson, "the conscience of two intellectual generations" (to use Kazin's description) and the later Van Wyck Brooks. The term "prose literature" is thus defined on a scale and variety that makes for the special quality of this book.

Its fifteen chapters are divided into three parts—"The Search for Reality" (1890-1917), "The Great Liberation"

(1918-1929), and "The Literature of Crisis" (1930-1940). Each part maintains the same symmetry by devoting attention to the major fiction, the prevailing trends in criticism, and the leading ideas of the time; there is also a general review of the period in each part.

The first part is the longest, and ventures more often into realms other than creative literature or criticism. Thus there are two chapters on "Progressivism" in this part—one of these chapters studies how naturalistic magnification of man (as done by Frank Norris and Jack London) was a product of the same era which saw writers like Upton Sinclair, Lincoln Steffens and Robert Herrick finding man considerably reduced in human dimension by oppressive social and economic forces.

The other chapter is devoted to "insurgent scholars" like Veblen, Dewey, Charles A. Beard etc., each of whom illustrates the 'progressive' spirit in economics, educational theory, history etc. These two chapters indicate the possibilities of writing a new kind of history of ideas—a promise, however, which Kazin does not quite fulfil in the rest of this book.

There is no comparable section in Parts II and III, and the remaining two-thirds of the book fall into a predictable pattern with the economic crash of 1929-30 acting as the great divide separating the generations between the two wars. The division is feasible in separating writers like Sinclair Lewis and Sherwood Anderson from Hemingway and Scott Fitzgerald, but it does not seem equally apt in demarcating the lines of critical battle.

The relevant portions—namely, the tenth chapter in Part II, "Liberals and New Humanists," and the thirteenth chapter in Part III, "Criticism at the Poles"—may adhere to Kazin's scheme, but the subject-matter cannot so neatly be gathered into compartments. The bi-polarity of American critical thought surely began much earlier than 1930 and continues well into our own time.

In reading the book today, it will seem that Kazin begins to lose focus in the eleventh chapter, "Into the Thirties: All the Lost Generations." Perhaps this is inevitable when one considers twenty-five-year old opinions and judgements. It was possible for Kazin to come to conclusions of a kind about Dos Passos or Scott Fitzgerald or Thomas Wolfe in 1942, but not about Hemingway or Faulkner, who continued to create beyond this date.

This of course must happen in any attempt to project contemporaries into a historical order—history strides forward, leaving the historian behind. Kazin must have been sorely tempted to rewrite the book in 1955, but contented himself with a postscript which carefully avoids offending the thesis or the scheme of the book.

The thesis is stated in the preface—"...the greatest single fact about our modern American writing—our writers' absorption in every last detail of their American world together with their deep and subtle alienation from it." And, "what interested me here was our alienation *on* native grounds—the interwoven story of our need to take up our life on our own grounds, and the irony of our obsession." This seems an inversion of that masterly demonstration by F.O. Matthiessen in *American Renaissance* of the deep and secure roots in American soil of seemingly alien art and expression of mid-nineteenth century America.

To strengthen his thesis, Kazin locates the origin of 'modern' American writing in William Dean Howells (and not, as is more customary, in Henry James), and follows the vein of "nothing more or less than the truthful treatment of material" in such miners of American reality as Dreiser and Edith Wharton, Sherwood Anderson and Sinclair Lewis, Willa Cather and Ellen Glasgow.

To those of us in favour of regarding Henry James as the starting point of 'modern' fiction in the English language the putting aside of James will seem justifiable only because Kazin is out to demonstrate alienation on *native* grounds. Also, in confining himself to the American scene, Kazin probably has no room for James, who belongs to a much wider setting. Kazin runs into trouble later in the book with Hemingway who, too, is not as easy to contain within the purely American setting as Wolfe or Faulkner is.

However, by choosing the important minor writers with care and by selecting suitable (to the thesis) aspects of the writings of the major authors, Kazin has succeeded in establishing a workable approach to modern American fiction which could be extended to more recent writers like Truman Capote and Carston McCullers, Saul Bellow and John Updike. Therein lies the value of the book; its method continues to be useful even if some of its findings may have to be discarded.

Alfred Kazin was twenty-seven when he wrote this book. Some of that youthful zeal is occasionally apparent in the jaunty prose ("Literature became something more than literature, and hence it did not always have to be literature"—p. 293) and in the bold judgements ("Hemingway's stubbornly atomic view of life is the highest expression of the postwar sequence, not a bridge to the future"—p. 265). But it is precisely this air of self-confidence which makes the book so readable even today

CARLOS BAKER: ERNEST HEMINGWAY: A LIFE STORY

Reviewed by Professor Irving Howe

The biography of Ernest Hemingway by Professor Carlos Baker of Princeton University is the most complete and authoritative record to date of the novelist's life. But Irving Howe argues that the life of a writer as dedicated as Hemingway cannot be grasped apart from his writings and his attitude towards writing.

THROUGH ACCUMULATION and shading of detail, Professor Carlos Baker gives us a colourful yet finally commonplace Hemingway—at once soft-hearted and tough, finely sensitive and a hopeless braggart, superbly generous and a wretched bully—who had more than his share of adventures, troubles, accidents, and wives. Now, if this "Ernest" (as Mr. Baker chooses to call him) were to appear as a character in a story by Hemingway we'd immediately believe in his reality, for behind the character there would be the authority of his creator. But Mr. Baker fails to provide a convincing portrait of the man who might have *written* the story in which "Ernest" appears.

He fails for at least two reasons: first, he wishes not to be mistaken for one of those literary "highbrows" whom Hemingway liked to snarl at. Second, he has been misled by the Hemingway who masked himself as a tight-lipped regular guy, devoted to sensations of wine, fishing, and bed, and quite without intellectual depths or difficulties.

Mr. Baker reports, for example, that Hemingway both subscribed to *Partisan Review* and kept denying he ever saw that "highbrow" quarterly; but what this piquant detail might signify, or how it might fit into Hemingway's complex shuffle of public faces, he does not stop to investigate.

Am I guilty of the reviewer's common sin of saying the author should have written a book other than the one he did in fact write? I think not. For I have no quarrel with Mr. Baker's decision to avoid those spongy critical essays which some literary biographers insert each time they read one of their subject's novels.

When I complain that Mr. Baker's values are somewhat askew, I am talking about judgements as to what a biographer should stress. Ivan Turgenev, for example, has only two entries in the index. Yet Turgenev was a major presence in Hemingway's imaginative career, one of the few writers whom Hemingway acknowledges as a literary influence, and to a biographer who understands that nothing

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a writer does is more important than his writing, the idea of Turgenev as master and model should have seemed endlessly absorbing.

The Inner Life

Hemingway was often a disagreeable man, and it is to Mr. Baker's credit that he neither avoids nor makes too much of this fact. The only reason for bothering with the messiness of the middle-aged "Ernest" is that he retained some connection to the Hemingway who had been and now and again could still be a marvellous writer.

This means that he had—*it means he must have had*—a sustained if not always coherent or visible inner life. Let's even say he had a spiritual life and, despite all his swagger, an intellectual life. But you'd be hard put to know this, or at least to know it with the necessary fullness and depth, from Mr. Baker's book.

Brush aside the heroics: the hunter in Africa, the drinker in Cuba, the reporter in Spain, the fighter in Germany. Brush aside the bathos: the champ who flattened Max Eastman for doubting his virility, the sage who exchanged recipes for wisdom with Marlene Dietrich. What meanwhile was going on in Hemingway's mind? What changes of feeling towards the word, and what modulations of attitude toward the world? If Hemingway's mind was simple, as critics too readily said, or his art confined, as they too expansively said, how did he nevertheless manage to produce some unforgettable stories?

Now it isn't as if Mr. Baker lacks the materials for such a spiritual-intellectual account, if only even as the subdued line of a double plot in which the dominant line will be hunting, fishing, and boxing. Here, for instance, is what Hemingway said in an exchange with a Soviet critic, Ivan Kashkeen.

> "Everyone tries to frighten you now by saying...that if one does not become a Communist or have a Marxian viewpoint one will have no friends and will be alone. They seem to think that to be alone is something dreadful; or that to not have friends is to be feared....I cannot be a Communist now because I believe in only one thing: liberty. First, I would look after myself and do my work. Then I would care for my family. Then I would help my neighbour. But the state I care nothing for. All the state has ever meant to me is unjust taxation....I believe in the absolute minimum of government.
>
> "A writer is an outlyer like a Gypsy. ...If he is a good writer he will never like the government he lives under. His hand should be against it...He can be class-conscious only if his talent is limited. If he has enough talent, all classes are his province. He takes from them all and what he gives is everybody's property ....A true work of art endures forever; no matter what its politics."

Though it occurred in 1934, a short time before Hemingway went to Spain as a Loyalist supporter and adopted a rather unpersuasive stance of collective solidarity, this statement is valuable for the serious and quite moving way in which Hemingway articulates his bedrock, stoical individualism.

The sentence about standing alone is stirring, and as true today as when Hemingway wrote it. The concluding passage about the writer and society, though in my judgement somewhat confused, is valuable for anyone who cares about modern writing. But Mr. Baker makes nothing of the Kashkeen-Hemingway exchange; it remains in his book a raw lump of fascinating data.

Public Image and Self-Knowledge

The aging Hemingway watched the fat collect on his soul, as it would collect on his style; and most of the time he knew exactly what was happening. In his stories he transformed these personal troubles into the materials of aesthetic detachment, and in his great story "The Snows of Kilimanjaro" he described a writer slowly dying of gangrene in Africa who speaks to himself about his wife and his talent:

> "She shot very well this good, this rich bitch, this kindly caretaker and destroyer of his talent. Nonsense. He had destroyed his talent himself. Why should he blame this woman because she kept him well? He had destroyed his talent by not using it, by betrayals of himself and what he believed in, by drinking so much that he blunted the edge of his perceptions, by laziness, by sloth, and by snobbery, by pride and by prejudice, by hook and by crook. What was this? A catalogue of old books? What was his talent anyway? It was a talent all right but instead of using it, he had traded on it."

Simply to identify this character with Hemingway would be foolish, but it would be still more foolish to suppose there is no connection. Projecting his fears that he would die before getting his work done—and "gangrene" was a valid image of the state in which he found himself as a famous writer—Hemingway was here cleansing himself of his self-contempt and trying to salvage something from the years of sterility and exhibitionism. "The Snows of Kilimanjaro" is a picture of every writer entangled with the humiliations of success, but in some oblique way it is also a self-portrait.

For not many modern writers have charted their spiritual condition as accurately as Hemingway did in his fiction, all the way from the early stories about Nick Adams, the young man back from the war who tries to calm his nerves at the big two-hearted river, and Jake Barnes of *The Sun Also Rises,* the somewhat older man also back from the war and unable to sleep without a light on, down to the blowsy Colonel Cantwell of *Across the River and Into the Trees,* who systematically despoils his own memories.

There was a time, only a few decades ago, when Hemingway was the most influential figure in Western literature. Everyone seemed to be imitating him, from students in Iowa to novelists in Japan. Stylization, rightness of narrative line, clipped understatement, restrained bravado, manliness regained, sensuous purity, "grace under pressure"—these tokens of the Hemingway code stirred the imagination of a great many readers and writers.

And Hemingway himself, at once very proud and uneasy, had a keen sense of how far his cultural influence extended. Although this too should be a fact of interest for anyone writing a life of Hemingway, it is never discussed by Mr. Baker in any serious or comprehensive way.

A 'Moral Style'

The premise from which not only Hemingway but a whole generation of writers—Fitzgerald, Cummings, the early Dos Passos—began to work was that a whole style of life had crumbled in the aftermath of World War One. The traditional certainties of Protestantism had lost their power. The hopelessness of the familiar social world, the pointlessness of trying to change it, and the necessity for some credo of private disaffiliation (Hemingway's "separate peace") are assumptions all these writers shared.

Nor was it any longer a matter of searching for "new values". They were beyond such ambitions or delusions. It was their lot to spend their lives in uncertainty, and the problem that troubled them most was how to do this without violating their feelings about courage and dignity.

They saw their task as a defensive one: the preservation of residual decencies even when they could not quite offer sufficient reasons for wishing to preserve them. And if that seemed too ambitious, they were prepared to settle for a severe insistence upon keeping honest among, and with, themselves.

The best of these writers, and most strikingly Hemingway, were in search of a "moral style." By this improvised phrase I mean: a series of tentative embodiments in conduct of a moral outlook they could not bring to full statement; or a series of gestures and rituals that would be made to serve as a substitute of a moral outlook no longer available; or a fragmentary code of behaviour by which to survive decently, as if there were—the drama consisting in the fact that there was not—a secure morality behind it.

They were looking, to use a more homely language, for what New Englanders had once called a way of "making do." How one "makes do" under painful circumstances, whether with grace or self-pity, courage or deceit, is the great problem for the wounded men in Hemingway's world.

And perhaps in ours too.

A good portion of Hemingway's work is sinking into dust. But the best of it, the saving remnant, seems to me as fresh and beautiful as when it first came out. *A Farewell to Arms* still casts its romantic spell, still brings back the tremors of youth, still affects one as a fairy tale gone sad.

The Sun Also Rises is a major work, brilliantly constructed and coloured—though last year I was taken aback to hear some of my students complain that Jake Barnes indulges himself in too much self-pity. How imperious the young can be when judging the victims of disasters they don't even trouble to learn about!

While making my way through Mr. Baker's book I turned back to Hemingway's stories. I turned back with some hesitation, for it is always painful to discover that enthusiasms of youth seem faded or incomprehensible in middle age.

But there was no reason to fear.

The dozen or fifteen best among Hemingway's stories form a body of work at once solid and beautiful. They establish a new style and a new sensibility, such as we had never before known in America; and if, as one young reader told me a little while ago, they speak especially of "the wound of Hemingway's generation," we should have enough historical imagination—another term for moral sympathy—to see that in the long run the wounds of all generations are pretty much the same.

BOOK NOTES

The books briefly reviewed in these notes are available in many of the American Libraries in India. These libraries are located in Bombay, Calcutta, Madras, and New Delhi; also in Bangalore, Hyderabad, Lucknow, Patna, and Trivandrum.

AMERICAN FOREIGN POLICY; THREE ESSAYS, by Henry A. Kissinger. Norton, 1969. 143 p. In these three essays written before he became Assistant to the President for National Security Affairs, Mr. Kissinger examines the framework of U.S. foreign policy and the prospects for world order. These brilliant essays reveal the author's approach to the conduct of international relations as well as his judgement of the substance of contemporary world problems.

CONFRONTATION: THE STUDENT REBELLION AND THE UNIVERSITIES. Compiled by Daniel Bell and Irving Kristol. Basic Books, 1969. 191 p. This collection of essays, published previously in *The Public Interest* and *The New York Times,* provides a contemporary profile of the academic and political issues contributing to the student unrest, and suggests ways to ameliorate this situation within the bounds of the university framework. American events receive primary attention, but there are discussions of similar problems in European countries as well.

THE ECONOMY OF CITIES, by Jane Jacobs. Random, 1969. 268 p. Written in simple and profound manner, the author, as she examines declining cities from Harappa and Mohenjo-daro to Manchester and other cities of today, explains in her book why some cities decline and die while others live and grow. Revolutionary in its way, and contradicting conventional opinions, this book throws new light on discussion of economic growth and stagnation, of how people make their living, and of how cities rise and fall.

ENEMIES OF THE PERMANENT THINGS; OBSERVATIONS OF ABNORMALITY IN LITERATURE AND POLITICS, by Russell Kirk. Arlington-House, 1969. 311 p. Taking his method from Hume and spirit from T. S. Eliot, the author offers in this scholarly book a definition of normative knowledge and tradition. He makes a brilliant analysis of the loss of norms in a totalitarian society. In these philosophical essays he also analyzes useful present-day relationships between literature and social order.

ERNEST HEMINGWAY: A LIFE STORY, by Carlos Heard Baker. Scribner, 1969. 697 p. Prof. Baker, author of *Hemingway: the writer as artist,* the full-scale critical study of Hemingway's works, has compiled this thoroughly documented life-story based on Hemingway files of records and correspondence. Incidents are delineated in infinite details making it a valuable source of reference on the life of this great American novelist.

THE FORTIES: FICTION, POETRY, DRAMA. Edited by Warren French. Everett Edwards, 1969. 330 p. Members of university English departments critically analyze American fiction, poetry, and drama of the forties with examples. The literature of World War II and the highlights of that decade have been extensively discussed. It is an indispensable book for the study of American literature.

GANDHI AND AMERICA'S EDUCATIONAL FUTURE: AN INQUIRY AT SOUTHERN ILLINOIS UNIVERSITY, by Wayne A.R. Leys and P.S.S. Rama Rao. Southern Illinois University Press, 1969. 137 p. In celebration of the Gandhi Centennial, two professors at Southern Illinois University provide a philosophical study of Gandhi's teachings and their application to American education and society. This book outlines the basic tenets of Gandhian philosophy as interpreted by Western thinkers, and attempts to examine how Gandhian thoughts can help in resolving the conflicts and contradictions which face the American society today.

JASPER JOHNS. Text by Max Kozloff. Abrams, 1969. 195 p. Illustrated. Max Kozloff traces in this book the development of the work of a leading contemporary American painter, Jasper Johns, his influence on Pop artists, and how he, at the height of abstract expressionism, introduced realism into his compositions. Numerous attractive illustrations and tipped-in colour plates have been included in this book to supplement the text.

MY LIFE WITH MARTIN LUTHER KING, JR., by Coretta Scott King. Holt, 1969. 372 p. An incredible story—begun for Martin Luther, Jr., under the warm protection of Daddy King, Minister of Atlanta's Ebenezer Baptist Church, and for Coretta in the Alabama backroads where her father's saw mill was. This book covers from these beginnings to the assassin's bullet in Memphis, woven through each member of their family and interwoven with those people, places, and facts connected with this span of their lives. It also includes numerous references of Gandhi's influence on King and to the Kings' visit to India.

THE NEW CITY. Edited by Donald Canty. Foreword by Spiro T. Agnew. Praeger, 1969. 180 p. Illustrated. Initiated by the National Committee on Urban Growth Policy, this book examines with photographs and essays some of the old cities which grew haphazardly and resulted eventually in slums, and some of the planned model cities and towns recently completed. The emphasis throughout is on the need to make use of a variety of new means and mechanisms in all aspects of city planning.

NON-PROLIFERATION TREATY: FRAMEWORK FOR NUCLEAR ARMS CONTROL, by Mason Willrich. Michie, 1969. 341 p. This is a well-organized and balanced analysis of the specific problems which will be encountered if the Nuclear Non-Proliferation Treaty is implemented. The author, a former member of the Arms Control and Disarmament Agency, candidly discusses in this book the inherent risks, and shows concern for and sensitivity to the interest of other nations.

TECHNOLOGICAL MAN: THE MYTH AND THE REALITY, by Victor C. Ferkiss. Braziller, 1969. 336 p. Based on virtually the entire literature on the year 2000 and related subjects, the author has come up with thoughts of his own in which he offers guidelines to more rational, humane, social, political, and economic decision-making based on a system of sociological accounting, and suggests some controls over technology and giant institutions. It is a book with eminently sound thoughts, discussing some of the most pressing problems of the world.

THE UNPERFECT SOCIETY: BEYOND THE NEW CLASS, by Milovan Djilas. Translated by Dorian Cooke. Harcourt, 1969. 267 p. The author of the 1957 anti-Stalinist classic *The New Class* examines in his present book the claims of Marxist ideology intermixing theoretical analysis with accounts of his own experiences. He refutes the so-called scientific basis of communist ideas, and finds that, like all utopianisms, it becomes dangerous because it confuses aims with means, ideas with realities, mankind with men. This book is a valuable contribution in the field of political theories and Marxism.

WE REACH THE MOON: THE NEW YORK TIMES STORY OF MAN'S GREATEST ADVENTURE, by John Noble Wilford. Bantam, 1969. 331 p. Illustrated. Published three days after the splashdown, this picture-filled book brings to us with facts and figures the full report of the historic Apollo 11 moon-voyage. It describes in detail the moon, the vehicles, astronauts, space flights, and the Apollo programme, and includes discussions of the space race, and of reasons for and against a big space programme.

THE YEAR OF THE YOUNG REBELS, by Stephen Spender. Random, 1969. 186 p. The author reports reasonably and quietly on the happenings at Columbia, the Sorbonne, and in Prague and Berlin, and supplies a revealing appraisal of student mood and method in America contrasted with other world movements. Sympathetically written, it is an impartial analysis of the students' rights in relation to the universities.

YOUTH IN TURMOIL. Time-Life, 1969. 159 p. Adapted from the January 1969 issue of *Fortune*, this collection of twelve essays explores the impact of youth on the American scene. Well written and cautiously optimistic in tone, this book maintains that a constructive reaction between the youthful idealists and American institutions will produce a new synthesis.

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BOWSPRIT

CUSTOMARILY *The American Review* carries articles about America, written by Americans, and selected from American magazines as a means of sharing with Indian intellectuals in the universities, the professions, business and government a sample of what their American counterparts are reading. This issue is unusual in that it opens with a long, preliminary chapter of a forthcoming book about India written by an American, and excerpts from a book about America written by a Frenchman. Taken together, they remind how the myth about any nation in this interacting modern world is created not by its own people alone but by all the people everywhere, at home and abroad, who try to understand and interpret it.

The first piece was selected because it should be of special interest here, whether or not one agrees with the thesis. "Wanted in India : A Relevant Radicalism" is an analysis of India's economic needs and possibilities in the 1970s as seen by *Dr. John P. Lewis*, a former director in India of the Agency for International Development who has now returned to the university world.

It is followed by portions of "The American Challenge," a book which continues to be discussed, and argued about, on every continent. In it *J.-J. Servan-Schreiber* presents his analysis of American economic power and its impact.

In "The Multi-National Corporation" *Raymond Vernon* also surveys the role of big corporations in foreign investments. He looks both at the developed and developing countries and considers the economic benefits, as well as the political tensions which arise between sovereign nations and multi-national enterprise. Without expecting early resolutions of the tensions, Dr. Vernon suggests several possible approaches to a reconciliation of nation-state with multi-nation corporation.

Dr. Frank Tannenbaum, historian, looking at the same problems as M. Servan-Schreiber and Dr. Vernon, predicts the eventual irrelevance of the sovereign national state. In "Beyond the Nation-State" he maintains that international order and international organization cannot be built on nation-states. He foresees a variety of extra-national organizations, especially the multi-national corporations, as the basis on which the future organization of the world will rest.

National sovereignty and national security may be irrelevant to the contemporary world of some later century. But in this century, far more so than in the 19th century, the nation-state prevails. And within each nation are various ways of distributing power and using influence in subsidiary political units.

Political scientists have studied local governments within individual countries but to date little attention has been given on an international scale to these smaller political units. One interesting effort in international scholarly cooperation to study local political units is described in "Values Measured for Local Leadership," by *Dr. Philip E. Jacob.*

Social scientists will find the cross-country methodology of particular interest. Other readers will probably skip the technical portions but are likely to find the descriptive sections illuminating.

America has become a nation of urban dwellers with seventy per cent of its people living in cities. In "The Writer and The City" *Alfred Kazin* writes reflectively of this, describing the changing impact of the city on the imagination of American writers as America became an urban nation and as writers decreasingly came fresh to the city from rural areas, with a perspective from outside.

1969 will go down in history as a watershed year when man first walked on matter not of his planet. Long after the turmoils and tensions of the 1960s are mere footnotes to history, the first steps in the conquest of space will be sung. People from every continent shared in the venture. So we carry an article by an Englishman resident in Ceylon, "The Fascination of Space" by *Arthur C. Clarke.*

The Review frequently includes articles on race relations in America because it is a continuing problem engaging the serious concern of citizens of all colours. This issue has a thoughtful analysis by *Jacob Sloan* of "The Education of Malcolm X."

Concern about the proper role of the university also persists and is periodically reflected in articles in *The Review*. In this issue two views are presented on whether the university should hold firmly to its historic role of teaching and research—*Stephen J. Tonsor,* "The Hazards of Social Commitment"—or should add responsibility for applying knowledge to social problems—*John J. Corson,* "If Not The University."

BOOK WORLD gives a review of probably the most significant book on Gandhi to be published in America in his centennial year: "Gandhi and Non-Violence," a review by *Christopher Lasch* of Erik H. Erikson's "Gandhi's Truth."

M. C.

WANTED IN INDIA: A RELEVANT RADICALISM

JOHN P. LEWIS

The following article was presented in December 1969 as a policy memorandum to the Centre for International Studies. It is taken from a preliminary manuscript of a book which Mr. Lewis expects to publish later this year. Obviously it states his individual views, not those of any group or organization, private or public, in India or America.

Mr. Lewis is an informed, dispassionate observer, impressed by India's importance, its efforts to achieve modernization by constitutional, democratic means, and the success of the political-economic reforms adopted in the middle 1960s. Looking ahead, he foresees the need for a more accelerated growth rate and the critical bottlenecks, internal and external, to its achievement, and points up the importance of an effective anti-poverty emphasis for a politically viable India.

Last summer Mr. Lewis left India after five years as Director of the Agency for International Development's Mission to India, and resigned to become Dean of Princeton University's Woodrow Wilson School of Public and International Affairs.

ON SATURDAY, July 19, 1969, the Government of India suddenly nationalized the 14 largest private Indian commercial banks. The action, whose timing confounded the expectations of most observers, sent shock waves through the Indian industrial and commercial communities, gravely distressed most of the English language press, caused tremors of unease abroad—and at home instantly was accorded the warmest rank-and-file political reception any economic reform had lately received.

It evidently delighted not only the organized bank employees, but most of the Congress Party backbenchers (where most of Prime Minister Indira Gandhi's personal parliamentary support lay) together with a great variety of interest groups around the country representing so-called "weaker sections" of the rural and urban population.

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Within hours of its promulgation by ordinance, few of India's senior politicians felt they could say a word against bank nationalization, and when Parliament reconvened for its monsoon session two days later, it shouted through legislation confirming the measure.

One less obvious question raised by the bank nationalization episode is the one I want to pursue here. In its timing, at least, the move was wholly political. It was one blow struck in a counterattack by Mrs. Gandhi against the old guard of the Congress Party—the so-called "Syndicate" of older state political leaders, who had made common cause with Mrs. Gandhi's No. 2, Morarji Desai, the austere, septuagenarian Deputy Prime Minister and Finance Minister.

Mr. Desai, having challenged Mrs. Gandhi for the leadership of the government and lost following Congress' reverses in the 1967 general elections, became (despite the continuing correctness of his deference to the Prime Minister) the other pole around which the Indian Cabinet stalemated during the period 1967-69, at least as to fresh decision-making on economic matters.

When the Syndicate undertook, early in July, to challenge the Prime Minister on the issue of the Party's nominee for the (largely honorific) post of President of India, Mrs. Gandhi, an enigmatic leader but a skilful tactician, countered on another front. Unexpectedly she proposed a series of economic reforms to the party meeting then in session—a list of second-rank economic proposals that had been kicking around for some time.

But they, and, most particularly, the bank nationalization scheme, struck a responsive chord with the party rank-and-file. Thereby Mrs. Gandhi acquired the necessary rationale for her most unexpected move, a few days later, when she suddenly and publicly stripped Morarji Desai of his Finance portfolio (in a manner that guaranteed his resignation from the Cabinet).

The inability of her opponents, despite their outcries, to block this step gave her the momentum needed for pushing bank nationalization through the Cabinet and Parliament months sooner than expected. The ensuing popular response in turn strengthened her hand in defeating the official Congress Party (i.e., the Syndicate's) presidential candidate when she threw her support to Mr. V.V. Giri.

As even the readers of American newspapers know, the intra-party conflict between Mrs Gandhi and the old guard did not cease at that point, in August. However, it is not part of my purpose, especially from this distance, to pursue the current convolutions of Congress Party politics. Nor do I propose to linger over the merits and demerits of bank nationalization as such.

The reform has both its minuses and pluses. A few of the private commercial banks latterly had been notably progressive in their outreach to new, especially rural, clienteles and in experimenting with riskier criteria for development loans. It would be sad if these initiatives were stunted, and it would be a minor disaster if now public bureaucracy were allowed to overlay private bureaucracy (either separately would be preferable) in the formation of the banking system's working procedures, or if the system got entangled in politics.

On the other hand, few of the private banks had been progressive. Several had had excessively close relationships with big business houses. The country's largest commercial bank had been nationalized years earlier (indeed, in effect, under the British).

Some advanced, predominantly private-enterprise economies, e.g., Italy and France, have nationalized major portions of their commercial banking without serious repercussions. In theory, undertaking to run commercial banking explicitly in support of the public interest is a perfectly respectable technique for coping with the fact that the banking system is the principal creator of money and a major allocator of savings in any modern economy.

In practice, in India, judicious decentralized management of nationalized banks could improve the allocation of loanable funds; and there was no reason to think the take-over of the banks augured further government take-over of private manufacturing firms.

The fact is that bank nationalization was not and is not a first-order issue, one way or the other—any more than were the other economic-reform proposals (including a reduction in the perquisites of the ex-rulers of former princely states) that Mrs. Gandhi dusted off in her party councils last summer.

Indeed, it is precisely this quality of lesser importance that gave the bank nationalization episode its interesting *symptomatic* significance. The action provoked what most dispassionate observers judged to be a disproportionately favourable response. Why? Why, by mid-1969, did the sudden, expedient unfurling of a banner of economic radicalism—even the hasty unfurling of a rather tattered banner emblazoned with seemingly lesser causes—evoke such a pent-up reaction?

This is the issue I propose to explore in these pages, because I think the answers go a long way towards illuminating both the problems and the potentialities of the Indian development experiment in the 1970s. At least for an American readership, however, it may be necessary, first, to establish that the stakes are consequential. Two questions interpose: Does India really matter all that much to Americans, except to India specialists like myself? Second, is not India, whatever its intrinsic importance, a bottomless pit devoid of economic promise?

I

Is India Important?

As for the importance of India, after living six out of the past 10 years in Delhi, I confess to the flat-footed if parochial conviction that few things should matter to Americans more—or in fact do concern us less.

The ignorance of the average American, European, or Japanese about India is doubly dangerous because it is deceptive. India—unlike Tanzania, let's say—is superficially familiar. People know where it is, that it is hot, the names of some of its chief towns, and that it has an awful lot of people, monkeys, cows, maharajas, and snakes. A few even have done the three-day Delhi-Agra-Jaipur circuit in the course of a round-the-world tour. Many have India pegged as a depressing, desperately poor, rather dull country inhabited by people who talk too much too piously but achieve little.

The worst error may be in thinking of India as a country at all. Obviously it is one, and even as such it is rather special. Strategically it shares a 2,000-mile border with China, and no kind of stability is possible in the arc of non-Communist states around the southeast corner of Asia unless India is secure.

In its domestic politics it is almost unique among developing countries: for 22 years—including, since 1962, a period containing two small wars, a monumental natural disaster, and two successions of top leadership—the Indians have clung meticulously to a constitutional-democratic procedure of economic and social development.

But these are the grace notes around India's importance. The main reason its future will bear heavily on everyone else's, including that of the United States, is the simple matter of size—population size. India, in fact, is a vast continental system, bigger than Western Europe, with as many states (17) as Europe has countries, fully as diverse in terms of languages, ethnic groups, religions, and geographic subregions, and with little more history of self-generated political integration.

Among all the less developed countries save China, it is the outsized freak. It is almost five times larger than the next largest (Indonesia). Its average-sized state is as big as Turkey or South Korea. Its largest state (Uttar Pradesh) if it were a separate country would be the world's eighth largest. The country's total population of 540 million equals those of Latin America and Africa combined.

One of the more remarkable accomplishments of the 20th century is that, after the partition from Pakistan in 1947, this monster, this elephant, of a country, emerged as a single, self-governing nation-state. It absorbed some 500 princely states; got itself sorted out (in less than 10 years) into roughly its present alignment of states; formed the sovereign political union and the well-nigh politically perfect common market towards which Western Europe is still only beginning to grope; and—even more remarkable—with an impoverished, mostly illiterate population, it achieved and sustained all of this integration by orderly parliamentary processes.

Presumably in a domestic context the virtue of political-economic integration is its own reward. But one of the ironies of the way we have the world organized today is that full-blown integration, as in the Indian case, is penalized internationally.

All of us all of the time—the press, scholars, governments in their bilateral relations, and international organizations like the UN and the World Bank—see and deal with the world, not as a development of people, but as a set of nation states. And in much of our thinking all countries are equal. As a result we see the territories of Liberia or Costa Rica through powerful binoculars and India through the same binoculars—inverted.

This era's national-sovereignty lenses are the reason why one Indian has only about 1/500 of one Liberian's representation at the United Nations and why his claim on external development assistance (despite all of the recent efforts of

AID, the World Bank, and others to "concentrate" aid on the major deserving cases) is inherently weak.

Any comparison of per capita aid figures—for almost any roster of recipient countries, for recent periods or earlier, short or long periods, from all sources, all except the eastern bloc, or from the U.S. alone—shows the same thing: India at the tag end.

The following numbers, assembled by the Pearson Commission and representing average annual receipts of net official assistance per head from West European and North American countries, Japan, and multilateral agencies (including those of the World Bank group) for the years 1964-66 are wholly representative:[1]

Jordan	$36.6	South Korea	$7.1
Liberia	31.6	Kenya	6.8
Tunisia	17.9	Turkey	5.7
Chile	15.7	Taiwan	4.8
Algeria	14.3	Colombia	4.8
Nicaragua	8.0	Pakistan	4.2
Morocco	7.7	Brazil	3.0
Ghana	7.6	India	2.5

The sovereign-state lenses also are the reason for the superficiality of knowledge about India. It is so big that no one can admit to knowing nothing about it, but it is, after all, just one out of nearly 100 developing countries; a dash of knowledge has to do.

Similarly with the press. *The New York Times*, the *Baltimore Sun*, Time-Life, AP, UPI, the *Christian Science Monitor* and McGraw-Hill jointly, and sometimes the *Washington Post* and the *Los Angeles Times* have maintained single correspondents in Delhi in recent years; other American media rely on Indian stringers. These reporters "cover" all of India and usually Pakistan, Ceylon, Nepal, and a few other areas to boot.

As a group they have been very competent, but they have an impossible beat. Consequently they too often take refuge in engaging trivialities, and when they do file meaty stories, altogether too often they are slashed to ribbons or relegated to page 46 by editors at home.

No instant reform of this state of affairs is in prospect. The *New York Times* is not about to establish a set of Indian bureaus equivalent in strength to its representation in Latin America. Nor is the State Department about to appoint an Assistant Secretary for Indian affairs. But this is all the more reason for individual Americans to remind themselves of the importance of India from time to time and to work a bit at finding out what is going on there.

II

Upswing Resulting from 1965-66 Policy Decisions

The impression that India is economically hopeless peaked two or three years ago but is still common in some quarters. It is dead wrong.

The impression owes much to a peculiarly irresponsible, panicky seizure that overtook western social science and political-economic commentary about three years ago when all kinds of eminent folk were extrapolating cumulative disaster, not only for India but for most of the developing countries, from one discrete and obviously unusual natural calamity—India's double-year drought of 1965-66 and 1966-67.

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[1] *Partners in Development*, Report of the Commission on International Development, Lester B. Pearson, Chairman, New York, 1969.

To anyone in the field these "Famine-1975" forecasts obviously were hysterical. Happily they already are out of style. However if one peeled away the drought-induced exaggeration, there were plenty of grounds for pessimism about Indian economic performance up to about 1965-66.

The record was by no means one of absolute stagnation. Since the start of the country's accelerated development effort at the beginning of the 1950s a lot of infrastructure (power, irrigation, railway, roads, etc.) had been built or improved. A wide array of manufacturing and therefore a capacity to substitute domestic production for imports had been launched. And agricultural output had been expanding at an average annual rate of 2-1/2 per cent and total output (i.e., real GNP) at about 3-1/2 per cent, in both cases against a background of no growth in the two or three decades preceding 1950.

In some times and places this would have been quite a show—for example, the American economy's record seldom has exceeded these averages for long. Nevertheless, in 1965 and 1966 those of us who were hopeful about India had to keep making excuses for the lumbering, cumbersome scale of the Indian effort.

We were fond of noting, for example, that if progress in the Punjab or Madras could only be reckoned separately it would match or outclass the performance of most of those showcase countries (most of them smaller) whose dynamism was heralded so widely by development analysts.

But we also had to admit that the all-India rate of progress achieved from 1950 to 1965, however admirable, simply was not good enough—not when laid alongside the population growth-rate, 2-1/2 per cent per annum, that had been reached before the end of the period. The growth in numbers was entirely cancelling the average annual gain in food production, and with slowly rising incomes, a food demand-supply gap was inexorably widening year by year.

Only increasing infusions of P.L. 480 American food (2 million tons in 1958, 4 million in 1963-64, and 6 million in 1964-65, a very good crop year, before the first bad drought) prevented a runaway, politically disastrous food-price inflation.

As for total production, what was left after adjustment for population increase was a barely perceptible annual per capita gain of 1 per cent *on average.* Unless the distribution of the gains was perfectly even (which it was not) many individual Indians were losing ground absolutely.

Plainly, as the ferment of development spread, a 1 per cent creep in annual per capita real incomes could not keep pace with rising expectations—especially if anything like adequate set-asides for investment were attempted. There was abundant reason to fear, at this economic pace, that the democratic, open-ended politics of Indian development was living on borrowed time.

There was, nevertheless, a solid basis for hope in 1965-66. Many Indian ministers and officials were coming to the view, not only that the past economic performance was inadequate, but that, with the help of a specific and feasible set of public policy changes, the rate of progress could be kinked upward — abruptly, quickly, and lastingly. The prescription was in two parts.

First, a new agricultural strategy was available and feasible—one that relied for its drive on the Indian cultivator's appetite for gain and upon his native intelligence for much of its implementation. It would therefore provide him dependable incentive prices.

It would offer him a profitable new technology built primarily around the new availability of a wide spectrum of high-yielding grain varieties and their striking responsiveness to fertilizer in water-assured areas. Accordingly it would take bold steps, despite the heavy drain on the country's scarce foreign exchange, radically to increase the importation of fertilizers and provide the new seed supplies; and follow up forthwith with swift expansion of (and recruitment of foreign private participation in) domestic production of fertilizer, seeds, pesticides, and other agricultural inputs.

The strategy would rely on the initial successes of the seed-fertilizer combination in the hands of the more alert farmers to create effective pulls on other such potentially bottlenecking factors as agricultural credit and irrigation. And it would strengthen and focus the country's new agricultural universities and the rest of its agricultural research establishment to solve technical problems as they came to hand, keep freshening the technology, and meet the new agriculture's skilled-manpower requirements.

The second part of the prescription relied on the diagnosis that the Indian industrial economy (operating strangely below capacity in such a capital-poor country) was over-controlled and wastefully starved for imports, and further that the rupee exchange rate was too high to facilitate export expansion.

It recommended — if more general-purpose "nonproject" aid for backstopping the moves could be found — lowering the exchange rate, letting the consequently higher import prices do more (and bureaucrats less) of the job of rationing imports, building a realistic system of export incentives around the new rate, and relying increasingly on market forces for the direction of industry.

Since these policy packages were mooted in 1965-66 many unexpected things have happened — including the second of the two droughts, which delayed the benefits from the policies and therefore worsened the position of the Congress Party, by then under the economic banner of the new policies, in the February, 1967, general election. But the important points for our present sketch of the Indian predicament are two.

In the first place, largely in a 12-month span from the summer of 1965 to the summer of 1966, the policies outlined were substantially adopted. This was a quite remarkable season of government decision-making because it also includes the distractions of the August-September (1965) Indo-Pak Conflict, the first (and worst) drought and a change of prime ministers with the death of Lal Bahadur Shastri in January, 1966.

But fate seemed to favour the new programme. The drought only accented interest in the new agricultural strategy. The very newness of Mrs. Gandhi's government in the early months of 1966 may have caused it to charge forward faster with the implementation of the programme; and the newness of the government may have speeded the formation of initial support for the programmes by the Consortium of Aid Donors to India (the World Bank and 10 national governments including the U.S., the U. K., West Germany, Canada, and Japan).

In any event, a new course was set — rather completely. The new agricultural strategy received thoroughgoing parliamentary assent under the leadership of the then Food and Agriculture Minister, C. Subramaniam. A daringly large importation of Mexican wheat seeds was made to launch the High Yielding Varieties scheme. Fertilizer imports were radically accelerated, as were efforts to enlist foreign private investors in fertilizer and otherwise expand domestic fertilizer production.

The rupee was devalued — more sharply, (36.5 per cent indicating a rise of 55 per cent in the rupee price of imports) than most observers expected. The import regime was substantially liberalized, and a beginning was made (although this took longer coming into focus) on more effective export promotion.

On top of all this, in this same 1965-66 surge of decision-making, a possibly still more important initiative was taken. The Indian family-planning programme, long a theoretical commitment of the government, was given serious emphasis for the first time. It received administrative and personnel reinforcement and the first of a series of sharp budgetary expansions that are still underway.

The second point is that the programme has worked. This is most conspicuously and importantly true thus far in agriculture. The new strategy has worked technically—in the wheats, superlatively well, in rice increasingly so.[2] Moreover, the *tactics* of the strategy have worked.

Indian farmers have indeed responded to incentives; the successes of progressive farmers are in fact proving the best spreaders of the new technology to their neighbours. The pulls of a profitable agriculture upon other supporting activities are operating as hypothesized. Input suppliers are rallying round.

In the case of fertilizer production, the Government of India, for its part, has been disappointed at the hesitancy of foreign investors to enter what certainly will be one of the great expanding fertilizer markets of the world during the next 20 years. For their part, a number of the foreign companies have found the Government of India difficult to deal with.

But nevertheless, fertilizer capacity

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[2] Talk about the new varieties lagging in the case of rice, which is India's more important crop, is—compared with the normal spate of complications one should expect with a radical shift of biological and chemical technology—more a reflection of the extraordinary success of the wheats than of setbacks with the rices. At any rate, new domestically bred improvements on such imported varieties as Taichung Native No. 1 and the International Rice Research Institute's IR-8 already are becoming available. In rice, as indeed in the sorghums and maize, the yields are remarkably better than those of traditional varieties, and the market will accept the new varieties at rewarding prices.

now in operation, under construction, or firmly committed (including four projects with major foreign private investors, a big American-assisted cooperative project, and two large wholly Indian private establishments) is already, measured in terms of nitrogen, about 2-1/2 million tons, or six times what existed in 1965, and three times what was either in place or under construction in that year.

Private tubewells are being sunk at the rate of some 70,000 annually; three or four times as many wells of all kinds have been getting electrical connections for pumping sets; and there is a new surge of attention to water investigation, planning, and development at the government level.

New sources of agricultural credit have been opened in the past 18 months, and more are in prospect. There have been major advances in the funding and focussing of agricultural research, and the need for sustained strengthening of research activities seems accepted.

The Food Corporation of India (a kind of C.C.C.) has begun to do an effective job of building buffer grain stocks and administering a price-support system. State food zones (which made sense, if they ever did, only under the primitive exigencies of a famine-oriented food economy) are being progressively dismantled, and more of the task of food distribution is being shifted to private trade.

India's antique food-processing industry is starting to point towards new opportunities in the export as well as domestic markets. And, in the case of those farmers already participating in the new agriculture, demands are burgeoning, not only for such investment goods as tubewells, pumps, and tractors, but for a great variety of consumer goods including bicycles, sewing machines, and transistor radios.

Nor is there any prospect of the agricultural push's wilting. Thus far it has reached only a small minority — maybe 15 per cent — of farm families; it has a long way to spread. Nudged by the droughts but entrenched by its own successes, agriculture has become a genuine top priority with all Indian governments — centre and states of whatever political hue.

Moreover, its continuance as such seems assured because, for better or worse, India has acquired a farm bloc. Progressive farmers have become articulate, highly practical, and (at the regional level) increasingly organized in their demands for better and better information, supplies, and facilities. They have learned how to get the ear of politicians and administrators, especially in a context of effectively competing political parties.

Furthermore, the output effects of this revolution in agricultural inputs have now been demonstrated. The first year of good weather after the droughts, 1967-68, brought in a resoundingly good grain harvest of nearly 100 million tons, 10 per cent above the previous high. But the weather *was* exceptionally good. Last year, 1968-69, provided the confirmation that a corner has been turned: the weather was distinctly below average, and yet the crop equalled its predecessor.

After carefully examining all of the available data (or, more accurately, presiding over a staff intensively engaged in such analyses) I am convinced that Indian agricultural production now is established on (and, with reasonable continuity of policies and inputs, can for some time stay on) a growth track of 5 per cent output-expansion per year, compared with the 2-1/2 per cent of 1950-65.

Barring extreme vagaries in the weather, India's food demand-supply gap should be closed and its need for P.L. 480 assistance ended during the first half of the 1970s. In fact, odd as it may sound, it is quite possible the Indians will be worrying about agricultural *surpluses* before the next decade is over.

However, they have a good deal of room for raising nutrition with rising incomes, shifting cropping patterns, and applying the same kinds of technology- and incentive stimulus to other foods and nonfood crops that thus far have been limited to food grains. There is plenty of scope for continuing dynamism in Indian agriculture for some years to come.

On the industrial side, the thrust of the 1966 policies has been blunted by financial constraints—both domestic and foreign (see below). But recovery from the earlier industrial recession is well advanced.

The allocation of foreign exchange under the liberalized import regime is unquestionably more efficient and responsive to the needs of industry and of the market. The higher post-devaluation rupee costs of imports have contributed to a surge in the availability and use of Indian-manufactured products that previously had to be imported — especially a great variety of capital goods and intermediate components and materials.

And exports latterly have been recording exceptional gains (better than 10 per cent in the fiscal year ending in March, 1969) with the most striking advances coming, not in tea, jute, cotton-cloth, and other established Indian lines, but in such "nontraditional" exports as engineering goods.

So the big news from India in the past couple of years — and certainly the biggest economic news of the past 20 — is that apologies no longer are necessary for the growth capacities of the huge, lumbering, democratic Indian economy as a whole. With agricultural output expanding at 5 per cent annually instead of the old 2-1/2 per cent, for the first time since Indian independence the economy (even if the nonagricultural sectors do no better than in the past) is readily capable of expanding real GNP at a sustained annual rate of 5-1/2 per cent and per capita real incomes at 3 per cent per year, three times the grudging 1 per cent averaged during the period 1950-65.[3]

[3] The Memorandum, from here onward, makes a good deal of three alternative growth rates—the 5-1/2 per cent just noted, a slower one, perhaps on the order of 4-1/2 per cent, that is more probable, and a distinctly faster pace, which I identify as 7 per cent, which is desirable and with special efforts would be feasible.

To highlight particular projected growth rates in this fashion is to invite two complaints: first, that they invest planning choices with a false precision of which most quantitative development "models" are guilty—that the future, because of weather uncertainties alone, for example, is not nearly as predictable or controllable as "5-1/2 per cent growth" suggests; and, second, that the alternatives are not discrete—they are simply points on a range, all the in-between points of which are equally possible.

The first objection is perfectly correct, but the second, I think, is mostly wrong. For there are now, in the Indian case, three substantially different sets of internal and external policy choices that can yield three markedly different performance levels.

The actual growth path generated by the "medium" set of policies almost certainly would turn out, after the fact, *not* to have had a steady pitch

An ability to treble the annual per-person gains in income in any developing economy is heady stuff. But it is not, in this case, pie in the sky. It is a ready potential; it reflects *existing* physical and administrative capacities.

It does not depend on any further rationalization of Indian management or streamlining of bureaucracy. Given the breakthrough in agriculture and a continuity of efforts to maintain it, a tangible opportunity for faster overall growth plainly exists.

III

Challenges Ahead

We can begin now to bring this piece to focus. If this indeed is the time of greatest economic opportunity India has known, what in the world was the Summer, 1969, flurry all about? Why the excitement about an apparently different and secondary set of economic issues, the firing of a stalwart, internationally respected Finance Minister, the hullabaloo about bank nationalization? Why don't Mrs. Gandhi and her government simply drive full-steam ahead with the good things they evidently have going?

Something along these lines was the July reaction of many American businessmen who know India and of some U.S. government officials. But it represents too simplistic a view of the Indian development problems.

The July spasm, as I see it, was not frivolous; nor was it simply an exercise in personal politics. It reflected the frustrations of a government and a prime minister who, despite the present economic potential, are hemmed in by challenges to which they are finding it extraordinarily hard to contrive an effective response.

They correctly sense the need for a bolder, more radical programme than thus far has been mounted. But they are having trouble formulating a brand of radicalism that is really relevant to the problems at hand.

There are three economic challenges to be noted, then some underlying political circumstances to be identified before we get to possible responses.

IV

Impact of Reduced Foreign Aid

It takes spending to use a more rapid growth potential such as India now has. Demand must expand fast enough to match the growing productive capacity. In a country where rising food prices have been the most dangerous, politically explosive kind of inflation, it is necessary when food production accelerates to raise development spending in order to exploit the opportunity for faster overall growth that agriculture is creating.

But Indian expansion presently is held back by a variety of financial inhibitions. Partly these are a matter of mood or style. The government has a curious tradition of fiscal orthodoxy—

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of exactly 5-1/2 per cent—but it would be substantially faster than what the low-policy set, and slower than what the high-policy set, would produce under the same circumstances.

Thus, while apologizing for the spurious precision, I am adopting the 4-1/2, 5-1/2, 7 per cent labels as a useful shorthand. They are proxies that appropriately convey the relative differences among a limited number of alternatives.

one that, while it may look admirable when compared with the inflationary excesses of so many Latin American and other developing countries, has exacted costs in the past. And the financial caution has been accentuated during the past two or three years for at least two reasons.

For one thing, an upsurge of prices during the middle 1960s sharpened many Indian politicians' and officials' fear of inflation. Although the price surge was due mainly to food scarcity, it also reflected inadequate discipline of the money supply and proved that the economy's urban-industrial and government-worker sectors had acquired a full complement of cost-push tendencies.

From 1967 onwards the fashionable doctrine became "First stabilize, then develop" -- even though such sobriety can backfire in an economy so poor that only accelerated growth can provide the extra degrees of freedom needed for doing much else, including the fighting of inflation itself.

In the second place, India's internal financing style has been affected by her recent aid experience. No aid-receiving government is prouder, more jealous of its sovereign prerogatives, or more allergic to donor direction than is the Government of India, backed and vetted by the Indian Parliament. And during the middle 1960s the Indians have been subjected to fairly heavy donor pressures.

By now most senior Indian officials have come to realize that the "self-help" conditioning of aid by the World Bank, the U.S., and other Consortium members has concerned only economic matters, like agriculture, fertilizer, and import liberalization — it has not involved Kashmir, Vietnam, or the Middle East; it has been intended only for the Indians' own good.

It has been accepted by them only when the government of India had independently determined the desirability of the reforms in question, and even the manner in which such issues have been addressed has been fairly genteel, with the donor less typically laying down advance conditions for his assistance than linking the latter, after the fact, to worthy steps the Indians had taken on their own.

All of this being so, Indian ministers and officials, with Parliament watching their every move, nonetheless have great distaste for being told what to do by aid donors, however politely. The Indians have learned, moreover, that they are most vulnerable to armtwisting when they are over a foreign-exchange barrel. They are determined, therefore, to avoid that posture henceforward.

Since 1966 they have found the foreign-aid flow less than they had expected and, in particular, less reliable. So they have taken out an insurance policy against future aid disappointments and uncertainties that, by bringing them up short on foreign exchange, could expose them to unwanted donor influence.

For the past couple of years they have been building rather generous foreign-exchange reserves for a poor country, and they have found cautious government budgeting very helpful in the accumulation of this foreign-exchange cushion.

Beyond matters of mood and style,

there is a further domestic constraint on expansion with which any responsible Indian government must contend: the difficulty of increasing taxes and savings in support of the 5-1/2 per cent growth in output that is now physically and administratively feasible. Taxes and savings need to rise, not only as fast as income, but faster, to support the growing share for investment that faster growth both requires and permits.

The difficulty is doubly compounded in an agriculture-led expansion in India. For one thing, prosperous farmers are just as hard to collect taxes from in India as they are anywhere else. But in addition, in India the central government is almost blocked by the constitution from trying. Direct taxation of farmers is reserved to the states. And instead of trying to raise taxes on progressive agriculture, the states at the moment seem to be engaged in a competition to reduce them.

This obstacle may not be as insuperable as it appears. In a vigorously expanding economy there is scope for a quantum jump in farmers' saving, direct and otherwise; and it may well be that a more decentralized brand of federalism that pushes more developmental authority and responsibility onto the states, and encourages them to do likewise with local bodies, can prod states and localities into more aggressive taxgathering. But the central government has rightly flagged the revenue dilemma as one of the principal risks to accelerating growth.

Finally, among the financial obstacles to the realization of a faster growth rate, there are the problems of foreign exchange *per se*. Even these are somewhat paradoxical.

On the one hand, there is the reasonably straightforward, and dominant, proposition that the foreign assistance presently in sight is not sufficient to support 5-1/2 per cent growth. Back in 1966, the Consortium of aid donors rallied in support of India's import liberalization and increased fertilizer imports with a solid (roughly 50 per cent) increase in their nonproject assistance to $900 million. But the assumption at the time was that this level was to be sustained for several years. It was sustained one year; during the three years since then, the Indians have been lucky if similar aid reached $700 million a year.

In U.S. fiscal years 1968 and 1969 the availability of AID development loans to India, which had been at about the 400-million level annually in the earlier 1960s, has been cut nearly in half by the erosion of U.S. economic-assistance appropriations worldwide. (For fiscal year 1970 both the Johnson and the Nixon Administrations, after a searching examination of the Indian case, have recommended a return to the 400-million-dollar level, but at this writing the prospects for congressional acceptance are dim.)

In the same period, the provision of nonproject loans from the World Bank through its soft-loans ancillary, the International Development Association, was completely interrupted for more than a year when IDA ran out of funds (largely because of U.S. congressional delays in subscribing to IDA replenishment). Then came resumed IDA lending of nonproject or "programme" money at little more than half the earlier annual rate, and now we are told that the IDA Board (unconscionably, to my mind) is withdrawing that body from programme lending altogether.

It is said that India (as well as Pakistan, for which nonproject lending also is crucially important) henceforth will have to make do exclusively with project loans, from which it is virtually impossible to get the flow or flexibility of funding required to support the pattern of development now underway.

Meanwhile, the other country members of the Aid-India Consortium (which as a group used to be the laggards) have maintained their contributions to India fairly well. But they are getting tired of doing so when the leaders, i.e., the U.S. and the Bank, seem to be correlating their inputs inversely with the worthiness of the Indian case.

As I have said, the Indians now have their guard up against aid shortfalls. The first of the recent years (fiscal 1967/8) in which the aid availability disappointed expectations did little harm because the second drought, by prolonging and deepening the industrial recession, lowered import requirements well below projected levels.

But in 1968/9 and the current year it is evident that the fiscal authorities deliberately have budgeted for a slow-beat, low-metabolism recovery in order to keep imports from over-extending the faltering aid availability. The result has been a nicely modulated balance of payments—but also lost income and employment that the country could ill afford to give up. [4]

What, then, does India need in the way of external assistance for 5-1/2 per cent growth in the years next ahead? From the Consortium the old 1966 nonproject level or a little more (say $900 million to $1 billion) plus a moderate amount ($200 to 300 million) of project loans—or, leaving aside the diminishing input of U.S. food aid, a total of about $1.3 billion annually for three or four years. Thereafter, with 5-1/2 per cent growth and exports climbing as they should, net aid (gross aid less the repayment and servicing of past loans) could start declining fairly briskly and approach zero by the end of the 1970s.

What is needed, in other words, is the resumption for a few years of something on the order of the more generous Consortium contribution of the earlier 1960s—something in the range of $400-500 million from the U.S., or about 80 cents per Indian annually, and $2 per capita from the Consortium as a whole.

Thanks to its 1965-66 policies and the resulting agriculture breakthrough, India now is able to use such an aid level far more effectively than it could earlier and, thanks to the donors' own growth meanwhile, the old level would mean a lesser claim on donors' total resources. But 5-1/2 per cent growth will require substantially stronger external support than has been mustered these past three years.

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[4] This new procedure of adjusting the economy in advance to a discounted aid forecast, I might note, has been a source of no little frustration to those of us recommending aid levels to donor governments. Our practice has been, having estimated what we think the client really needs in a coming year, to paint a fairly dour picture of the effects of shortfall . . . . But with this new procedure there is, so to speak, very little blood on the floor as the result of shortfalls—no foreign exchange crises, no sudden disruptive suspensions of imports, no radical dislocations of activity. Low aid levels are self-confirming; they simply lead to a lower pulse in the system as a whole. But the costs are just as real as if there were more carnage.

Moreover it will be equally necessary, whether by firm multi-year commitments or otherwise, somehow to imbue such support with sufficient reliability to persuade the Government of India that it is safe to budget up to the planned aid level and marshal the necessary domestic financing to go with it.

But now we come to the most ironic point: You won't be able to get this story of aid requirements from the Government of India—*officially*. Officially, the Indians are asking for too little aid to reinforce the 5-1/2 per cent growth of which they are now capable—despite (as I shall be saying) their urgent need to go for still bigger stakes.

This is not because they cannot do the necessary arithmetic. It is partly because they are too proud to ask for what they think will probably not be forthcoming. But it also is because rapidly diminishing dependence on external assistance has become a favourite goal of domestic Indian politics.

This self-reliance syndrome (in a sense, simply, our own self-help principle writ large) is intrinsically admirable, of course. But an attempt right now at sudden self-reliance also is premature in terms of the costs in lost momentum it will entail—especially if the government manages to kid itself or its constituents into believing that these costs can be avoided.

Nevertheless the compulsion is strong. It has one altogether rational basis that I have sloughed over in my hurried remarks about aid: desire to minimize further enlargement of the country's heavy foreign-debt burden.

The cost of repaying and servicing old loans already approximates $500 million annually, and it is still rising. It means, for example, that a gross aid level from the Consortium of $1.3 billion for the next several years would yield only some $700-800 million of net aid.

Some sensible and orderly pattern of debt stretch-out or other readjustment that fully guards against the Indians' horror of being in default is going to have to be developed within the Consortium in the year ahead. In fact, the problem already is in its third year of study and experimentation.

However, borrowing from abroad as a means of accelerating development is a little like taking a series of bank loans in support of an extended piece of factory construction. Somewhere in mid-passage everyone may conclude it would have been better all around if the earlier loans had been on easier terms.

But one of the least promising courses (for the lenders as well as the borrowers) is thereupon to abort the borrowing programme, cripple the project itself, and thereby leave the borrower without the increment in productive capacity upon which he had been counting, not only to serve his own objectives but to service his accumulated debt.

Something of this kind, I fear, is what the Government of India has projected in its new Fourth Five-Year Plan for the five years beginning April 1, 1969. The Plan otherwise is a cogent, pragmatic, agriculture-accenting document; it is more realistic than its predecessor five-year plans (which, before an interruption in five-year planning, ended in 1966) and it is a workable programme for implementing just about the 5-1/2 per cent growth rate I have been emphasizing—*except that* it seriously understates the aid requirement.

Its five-year calculation of needed net aid is short, I suspect, by something like a billion dollars. Its projection of continuing export expansion is probably a little too ambitious, and its estimate of the import requirements for 5-1/2 per cent growth is almost surely very low. This is largely, I think, because a good planning analysis has been strained to accommodate an *a priori* political dictum that, in the cause of self-reliance, the Plan should show net aid being reduced at least by half during the plan period.

Such then is the array of financial drags on India's prospects for taking quick advantage of the accelerated expansion of which she is newly capable. If they are not substantially overcome (and the likelihood is that they will not be) internal and external finance is apt to fuel a growth of no more than 4 to 4-1/2 per cent annually, or per capita of no more than 2 per cent—i.e., some improvement over the past, with some imprint of the 1965-66 policies showing, but still a low-metabolism, slower-than-necessary performance that will harshen the impact of the problems we turn to next.

V

Unemployment and the Rural Poor

Having a substantial speed-up in development almost within reach but being too tied up in financial knots to grasp it is enough to frustrate any government facing ominous elections ahead. But that is only the first of the challenges.

Mrs. Gandhi and some of her colleagues also realize that even if they should manage to shake their financial fetters and make good the 5-1/2 per cent growth they have projected in the Fourth Five-Year Plan, this may not be enough to keep Indian democracy secure in the 1970s.

For the country has a long-accumulated low-end poverty problem that 5-1/2 per cent growth will not touch. Indeed the particular, agriculture-led pattern of acceleration that is available is likely, at least relatively, to worsen the lot—and the discontent—of the economic tag-enders in the countryside.

The problem of the relatively poor in India—who in absolute terms are very poor indeed and are also in general the socially disadvantaged (the "scheduled," i.e., lowest castes or Harijans, the tribals, the urban derelicts)—often has been talked about as an employment problem. In an important sense it is.

There is an enormous if unmeasured amount of unemployment and underemployment in the system; it unquestionably has been rising from Plan to Plan; and it takes little hypothetical arithmetic involving the growth in the labour force and the probable increases in output per man in progressive agriculture and in industry to persuade one that 5-1/2 per cent growth will make no inroads upon —it may yet expand further—the volume of unemployment and underemployment in the economy.

But manpower data are notoriously

bad in India, partly because the westernized manpower concepts do not fit the Indian situation. Hence pursuit of the "employment problem" can generate a technical and statistical smokescreen that obscures the reality, which is a plain and simple low-end poverty problem.

India has shockingly large numbers of leftover people who have been able to claim few if any gains from development thus far. They have little or no bargaining power in the labour market, and their productivity is miserably low because the community's mobilization and rationing of scarce capital in behalf of overall growth has left them without tools—including the human skills that could be formed by investment in their training and, for that matter, in their improved nutrition.

Not only have the Indian poor been locked into their condition by a traditionally rigid social hierarchy. The educational system is denying their children ladders for effective inter-generational escape. In response to the democratic pressure of the Indian middle classes for more and more places in the middle and higher education levels, primary education has been both shortchanged financially and left wholly if lamely preoccupied with preparing pupils for further schooling.

As a result, primary education is notoriously weak in its staffing, programmes, and general effectiveness. Despite the initial enrolment of most rural as well as urban children in school, dropouts (or what the Indians accurately call "wastage") come so fast that barely a third finish the six elementary years.

And virtually all the very poor, finding that schools offer little and cost much, drop out, having neither gained occupational training nor attained membership in the pool of the functionally literate from which all future skilled, educated, professional, and managerial manpower is by definition drawn.[5]

Problems of the very poor, of course, are scarcely new in India. But the fact that, after nearly 20 years of concerted development, they still seem to be mounting relatively is a source of alarm. There is a consensus that the discontent of the disadvantaged is nearing some kind of ignition point.

The old tranquilizers—the glories of independence and the Nehru father image—have worn off. The news about the gains that development is bringing to the more fortunate members of the economy continues to seep to all corners of the system. The promise of gains for the nonparticipants if they will only wait is losing credibility. The country's more diffuse politics is a fresh invitation to demagoguery, some of which (e.g., in the inroads that Maoist-style Communists have made among landless labourers in the richest farming areas of Madras) is already appearing. And most of all, there is a new anxiety about a sharper confrontation of progress and despair in the countryside.

Ten years ago the dangers of unemployment and low-end poverty looked most inflammable in the cities. The countryside seemed comparatively uniform in its backwardness, and one saw rural poverty becoming explosive only as agriculture spun off its excess people into metropolitan agglomerates, where the modernized sectors could not absorb them and where they lived in accumulating misery without ability or incentive to return to their villages.

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[5] By the same token, since innate talent presumably is more or less randomly distributed through the population, the system is indulging in an enormous waste of its human potential.

During the 1960s nothing has happened to solve the problems of the cities. In absolute terms they have gotten worse, and there is an even stronger case than some of us saw at the beginning of the decade for far more deliberate and active promotion of selected smaller and medium-sized towns as growth centres that can intercept and hold the economic migrants from agriculture before they gravitate to the already-groaning metropolitan areas (just as there is a much more compelling case now as to the interplay between such dispersed growth points and a succeeding agriculture).

But now a part—a minor part in terms of acreage and numbers—of Indian agriculture suddenly has come alive and is highly profitable. It offers greater rewards to a portion of the rural population but not, at least not quickly, to all. The contrast between progress and poverty has become sharper in the countryside itself.

The distributional and political implications of a succeeding agriculture—the question of whether the green revolution belongs to the "kulaks," whether it mainly favours only the bigger farmers, what it means for tenants, agricultural labourers, and the rest of the rural poor—has produced a storm of concern, some premature conclusions, but already a good deal of analysis in Delhi during the past 18 months. My own tentative conclusions are the following:

1. The new agricultural technology is not notably skewed towards larger-scale farmers. The new seeds and fertilizer work on a 2-acre plot, properly tended, just as well as on a 20-(or a 200-) acre farm, and fairly simple organizational arrangements, including custom farming (in the case of machinery) and the selling of water between neighbours, should serve to get the other physical inputs, where they are available, to quite small owner-cultivators.

However, the bigger operators have had easier access to the relevant knowledge and to capital, both their own and what they can borrow. Thus, although the smaller farmers are catching up on the information and are getting improving credit facilities, they are typically more overextended by their adoption of the new technology and more vulnerable to natural or market setbacks.

2. But the new technology *is* sharply skewed in favour of wet versus dry farming (less than a quarter of India's total acreage is irrigated). Thus even though a greater future research focus on the problems of dry farming may help a good deal, whole broad areas of the countryside are destined to lag badly.

And the technology will leave forever behind and derelict the real "minifarmers." These are cultivators with holdings so small (perhaps less than one acre of good irrigated land, maybe as much as five acres of indifferent dry land) as to be inherently nonviable, unless they represent only part-time employment for an owner with another job. Their gross yields are simply too small to generate the wherewithal, after the farmer feeds his family, for buying the inputs the new technology requires.

3. The classic issue of land reform is being overtaken by the new agriculture. Land values are rising sharply and many owners either are selling or pre-empting tenurial rights themselves to reap the newly available profits. It is easy to exaggerate this trend, which differs greatly from area to area, but some aggregate transfer from the ranks of tenants to those of landless labourers seems to be underway.

4. The new agriculture remains labour-intensive, and for the time being it is using more labour than did traditional agriculture, primarily because of the multiple cropping it is introducing. Although the new technology does indeed raise output per man as well as per acre, for the time being it is raising total production fast enough to require more labour. Hence the reports, greeted with such relief by monitors of tension in the countryside, of labour shortages in some of the progressive farm areas.

But this is probably a passing phenomenon. Farmers will continue to have incentives to extend labour-saving mechanization, especially for those periods of peak labour requirements, notably harvesting and threshing, when the bargaining power of labour now is greatest. Moreover, the government probably will be wise enough to avoid trying to control mechanization (except perhaps through indirect taxes on equipment that are graduated in accordance with its labour-displacing effects).

Given the natural growth of the agricultural labour force that is in prospect and farm workers' limited prospects presently for employment elsewhere, the outlook is for characteristically easy, redundant, low-wage farm labour market as the 1970s unfold.

5. Summing up: The impact of the green revolution on rural inequality and discontent is not instantly explosive, but it will be formidably dangerous very soon. Three streams—minifarmers, dispossessed tenants, and the great mass of casual and residential farm workers—all of them poor and most of them socially disadvantaged, will be augmenting a rural labour supply that will tend to exceed demand.

Nor is there reason to expect progressive Indian farmers, any more than farmers elsewhere, to be more philanthropic in their wage-setting than the market requires. The only promising means for winning the rural poor a share in the gains from development during the 1970s will be a much tighter rural labour market, presumably as a result of more additive, alternative employment than is now in sight.

VI

A High Growth Rate is Basic to Relevant Radicalism

Such, I assume, were some of the painful considerations Mrs. Gandhi had in mind last summer when she chose economic reform as the issue upon which to confront Desai and the Syndicate and when, in the flush of the success of her bank-nationalization coup, she told a crowd of cheering wellwishers, "Bank nationalization was the beginning of a bitter struggle between the common man on the one side and a few individuals on the other."

The present leadership is correct in sensing the need for a radical turn of affairs in favour of the common man. There is less evidence that it has digested the proposition that the new radicalism must be effective—that it must be built around a solid, substantial, and quick delivery of additional jobs, incomes, and opportunities to the very poor; that waving old slogans and ritual attacks on old effigies will not suffice. There is also inconclusive evidence, therefore, that the leadership fully recognizes the positive, inescapable linkage between a relevant radicalism and the economy's aggregate growth performance.

The worst error, of which there is no reason to suspect Mrs. Gandhi but in which sober Western commentators sometimes indulge, is to suppose that because progress, such as the Indian agricultural breakthrough, generates contrast and conflict, things could be nicely damped down by choosing slower growth.

Not only does such a prescription ignore one major objective of the development exercise, which is *per se* acceleration of material welfare. It misreads another—India's purpose of maintaining democratic constitutionalism can in no sense be equated, I shall be saying, to the maintenance of status-quo political stability. The prescription simply won't work.

For after two decades of development the spread and growth of wants are not something that can be reversed or turned off. If even a 3 per cent growth in per capita incomes during the 1970s contains dangerous internal contradictions, reversion to 1 per cent growth would encroach still more deeply on borrowed time. And when the explosion came, one way or the other, there would be fewer resources for meeting it.

It is almost as important to realize, however, that no adequate attack on low-end poverty can be made by squeezing 5-1/2 per cent growth into a different shape. In particular, any effort to regiment agriculture or pare its incentives will serve only to stunt the one newly dynamic, thrustful factor in the system.

Nor as one looks over the Fourth Plan's already pruned bill of projected investments, or considers the distribution of industrial incomes, does he find any major and feasible room for reallocations in favour of the presently unproductive poor. This means that an old saw of development economics—that one must always look for trade-offs between greater equity and faster growth—is mostly misleading

The only feasible way to get substantially more equity into the Indian system in the 1970s is as a dividend from still faster growth, faster than the readily available 5-1/2 per cent.

There is a good deal of agreement among Indian officials and economists as to what the outlines of such a hyper-acceleration might be. The strategy (newly feasible with easier food supplies) would be to spend boldly—far more radically than ever before on a continuing labour-intensive, mostly public-financed, construction programme.

The economy urgently needs an endless variety of productive facilities producible by labour-intensive means—

among them irrigation channels, bunds, farm-to-market roads; the grain-storage and-marketing facilities, the schools and training facilities, the health and family-planning centres, and all the infrastructure for rural growth centres; the infrastructure for towns; urban redevelopment and housing; and the conversion of India's grossly inadequate highways into the kind of national highways system the country needs for articulating the common market that is its greatest hidden economic asset.

Thus there is no need for leaf-raking. A massive labour-intensive construction programme sensibly conceived and deployed could add almost as much to the economy's future productive potential as could an equivalent volume of public and private investment aimed at maximum-return uses (in this sense also the choice between growth and equity is deflected).

But the direct employment and the income benefits of such a programme could be tilted towards the very poor, substantial numbers of whom it would directly employ. The products and incomes of these people would be immediately upgraded and they would be subjected to new work disciplines and experiences that would ready some of them for further training. Meanwhile most other unskilled workers, especially agricultural labourers, would benefit by the programme's tightening effect on unskilled labour markets.

To this general sketch of a consequential low-end poverty programme I would add only, for the reasons indicated, a radically large budget —and a radically revised regime—for primary education.

Some very rough calculations in which I have participated suggest some possible dimensions for this kind of attack on low-end poverty in the 1970s. In terms of the additional demands for consumer and investment goods it would generate, the rest of the economy (with two towering provisos) should be able to cope successfully with an extra outlay of at least Rs. 7.5 billion annually that would directly and indirectly generate perhaps 8 million jobs and raise the G.N.P. growth rate from 5-1/2 per cent to about 7 per cent.

This is the kind of radicalism that would grab the beast of inequity by the forelock. But one understands the failure of the Government of India yet to enunciate such a scheme when one fills in the two provisos just above.

First, domestic taxes and savings would have to be raised even more courageously than in the case of 5-1/2 per cent growth. Second, even though the labour-intensive construction would have few if any direct import requirements, the additional indirect demands for imports generated by a construction programme of these dimensions would be enough to raise India's aid requirement, which I have estimated at $1.2-1.3 billion annually from the Consortium during the early 1970s for 5-1/2 per cent growth, to the neighbourhood of $2.2 billion a year.

Whether or not Mrs. Gandhi thinks the Consortium ought to be willing to buy extra jobs for poor Indians at the rate of $120 per head during the next few years, she does not expect it to do so. Moreover, receipt of such additional aid would so ill comport with the politics of self-reliance that she and her colleagues might not accept it—at least in traditional form—even if it were forthcoming.

The sad thing, however, is that without such a central thrust of bold (internal and external) funding, her new radicalism in behalf of the downtrodden dissipates into irrelevancies.

VII

The Need for Export Expansion

This particular review makes no pretense of touching on all of India's present major economic challenges. For example, the population problem possibly is the most critical of all; but it is comparatively well-known and plenty of people, myself included, will be writing about it further.

However, there is one additional economic challenge I want to deal with briefly here, both because its aid aspect can be linked to low-end poverty and because it is imperfectly recognized in India as well as abroad. This is what may be called the import policy, industrial efficiency, export-expansion nexus.

If India, once she has attained an adequately rapid growth track, is to become self-supporting in the international market, as both she and her aid donors ardently want her to do, her exports and imports must come into balance. One sensible means of approaching this objective, especially in so large and diversified an economy with such a broad spread of industrial competence, is to reduce imports relatively by producing at home things that used to be imported.

India has been pursuing this side of a self-support strategy relentlessly for years. But for several years it also has been apparent that import substitution can never suffice. Strenuous export promotion also is essential and, as we have seen, the recent trend of exports, especially of the nontraditional variety, is most encouraging.

The rub is that one half-strategy—import substitution—is in a fair way of undermining the export-expansion half because of the excessive protection of domestic producers by which import substitution is encouraged. As soon as Indian manufacturers are physically capable of producing substitutes for imports they are given absolute protection—not just high tariffs that leave buyers the option of paying a premium for preferred imports; imports are flatly banned.

No finer hothouse for a luxuriant growth of industrial inefficiency and high costs could be contrived. Banned lists come into effect as soon as a single producer or two or three can meet the current needs of the market—long before internal competition can provide any effective disciplining of costs.

Indeed Indian manufacturers are encouraged from the cradle to learn the skills of anticompetitive collusion.

This nurtured industrial inefficiency means that Indian consumers, who are too poor readily to afford it, receive less value per unit of outlay than they should. But more critically it means that Indian manufacturers for export, who must use domestic components and materials, face an uphill battle in bucking the likes of the West Germans, the Japanese, the

Koreans, and the Taiwanese in the world market.

Attempts are being made to reduce the problem by giving exporters special access to imports and/or world prices for indigenous products. But the high-cost structure in manufacturing is such a pervasive inter-industry phenomenon that there is only one good solution.

The solution is not yardstick competition by public sector industries. Indian authorities in the 1960s already have been bruisingly enough disillusioned about the efficiency of most public enterprises to be deterred, except out of habit on public platforms, from seriously advocating broadened nationalization as a solution to industrial discipline.

Nor does the promotion of competition by breaking private firms up into smaller pieces offer much early hope. On the contrary, many Indian manufacturing operations still are too small to avail themselves of the technological economies of scale.

The only effective agent of industrial rationalization in the near term will be more exposure of domestic producers to competition from imports. What is needed is not any flood of imports or total abandonment of protection, but a substitution of tariffs for absolute bans and, across most of the commodity spectrum, a sufficient spill-in of imports over duty barriers (whose height can be adjusted to keep the flow to desirable proportions) to keep effective competitive pressure on domestic producers.

I have never heard this position cogently rebutted on its merits in India. Instead its adoption is impeded by three factors. One is the general political euphoria over self-reliance. Second and powerful are the unabashed, rapidly mounting protectionist pressures Indian industry—both public and private—is bringing to bear on government. Third is the extra foreign-exchange costs the approach would entail. For, in all probability, not even the aid flow I have identified with 5-1/2 per cent growth would be sufficient to persuade the Government of India of the safety of a general dismantlement of import bans.

On the other hand, the kind of foreign aid needed to support a 7 per cent growth—antipovery programme certainly would be abundantly large to permit across-the-board import competition. Thus donors, should they choose to go this high road, would have the opportunity to hit two birds with one stone—if it were big enough.

For its part, the Government of India under such circumstances might be encouraged, as part of a focussed, pragmatic radicalism, to give short shrift to the special pleadings of protectionists (who, in any event, with 7 per cent growth, would enjoy such a burgeoning of demand that they would be in no danger, as a group, of being run out of business by imports).

Gunnar Myrdal in his massive treatise on South Asia has made a lot of the assertion that South Asian countries, especially India, are "soft states."[6] I am not quite sure what a soft state is, or that it necessarily is a bad thing. But what is clear is that, if India wants to make her independent way into the world market, she cannot afford a *soft economy.*

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[6] *Asian Drama*, The Twentieth Century Fund, 1968.

Withdrawing into a national enclave, however large, that insulates sloppy, wasteful, outdated, or clumsy industrial operations from the rigours of international competition is not the path to enduring self-reliance.

VIII

The Political Terrain Today

Finally, in this sketch of the current Indian scene, let me make a few assertions about the basic political terrain in which the Congress government, itself plainly on a declining slope since the early 1960s, confronts the economic challenges of the 1970s.

First, two points suggesting that the political form we are considering does indeed have some resiliency: For one thing, the Indian Union is unlikely to break up. This is not only because it has been standing the test of time well. It is because of the cohesiveness that many parts give to a fragmented whole.

In a system of 17 distinct parts that show no signs of coalescing into a few large lumps, any one or two parts have little chance of breaking away against the will of the rest if there is any significant national power and commitment in the system as a whole (and, barring a total loss of coherence in national affairs, it is unlikely that many of the parts ever will want to opt out at the same time).

In India the national commitment, the sense of Indianness, has long since been widespread. The tendency (even in the four southern states) to multi-state regional groupings is weaker than what we know in the United States. The instrument of national power, the army, is abundantly capable of putting down attempted rebellion or secession in any state, and it would be unhesitatingly so used with overwhelming national approval if the occasion required. In this sense the system is far more stable than are such few-parts federations as Nigeria or Pakistan—or than was the U.S. in 1850.

The other point is about the hardiness of Indian constitutionalism. Aside from admiring this aspect of Indian performance and respecting its endurance to date, I do not pretend to understand all its sources or to know its prospects. In fact, to fear an explosion of discontent in the 1970s is to assume that constitutionalism is not inviolable. However, there is one vital plus factor, concerning the stance of the Indian military, that is little remarked by outsiders.

Military self-restraint surely is the most elementary of all requirements for constitutionalism. By definition any army of consequence has the physical capacity to seize power in a country when it chooses. Yet no competent Western observer I know of ever has detected such an appetite in the Indian military.

The military, which is large and is said, since 1962, to have become a highly competent, professional force, seems already to have an ingrained tradition of dedicated submissiveness to legitimate civilian authority.

In a developing world blanketed with military regimes, this may well be the most remarkable thing of all about India.

I have not yet found a fully adequate explanation of it and therefore have no sure confidence that it will last. But as of now it is one striking proconstitutional feature of the political landscape.

Second, there are certain facts of life, only now beginning hesitantly to be admitted in India, about the limitations on a central government's capacity to govern in a very large system. Any unitary, proprietary management of the affairs of 540 million people is an inherently cumbersome undertaking. Jumbo size makes for extra administrative layering and, to the degree bureaucracy is centralized, accentuates the problem of clearing decisions up and down the administrative chain.

Moreover, there are not many more top central-government decision-makers (ministers, secretaries of departments, etc.) in a big system than in a small, and, although per cent selection mechanisms perhaps should afford the big system a slight edge in topside talent (empirical proof based, let us say, on a comparison of Washington and Stockholm would be difficult), any gain on this score is in no wise proportional to the numbers and diversity over which New Delhi presides.

A basic feature of the Indian political terrain, then, is the need to conserve central-government energies and capacities. The government can succeed only if it delegates and decentralizes.

It needs to delegate to the market, albeit a conditioned, socially regulated market—to exploit self-adjusting market mechanisms as labour-saving devices for bureaucrats—whenever it can. It needs to free itself from most detailed investment and business management decisions (and from direct responsibility for most business errors)—whether this means reliance more upon the private sector or on genuinely autonomous public enterprises. And if federalism did not already exist it would have to be invented.

The present political trend of power and decision towards the states conforms with operational imperatives; and in a system whose unity is secure it is not to be feared—as long as the centre leads the process of devolution and retains control over those factors necessary for making the system *qua* system work.

Third, there is a helpful partial analogue to the feature just described: If India has a greater than average need to depend on the market, it has a better than average market on which to depend—potentially.

Markets are one class of phenomena in which quantity and quality are positively correlated. The promise of the enormous Indian market—as an early yielder of economies of scale, a promoter of competition, an allocator of resources, an attractor of desirable foreign investments—is correctly listed as a basic datum of the political terrain. By the same token, its fuller articulation—the perfection of its freedom, the removal of nuisance interferences from it, and the building of necessary infrastructure for it—is urgent political business.

Fourth, there is another indigenous aspect of Indian political life, however, that comports much less happily with the need for decentralization: At least in the modern tradition, local self-government is woefully weak. For all its authentically representative and parliamentary character, government within the states is ridden with top-down-ism as it reaches to the people.

In the countryside, where four-fifths of the people still live, the market now, under the auspices of the new agriculture, finally is beginning to engage local energies and initiatives and to uncover new leaders in the realm of gainful activities. But as to those dimensions of local living that remain inherently governmental—schools, public health, roads, community planning, budgeting, financing, and the rest—no reliable and spreadable formula for participant democracy has yet been found.

The official attacks on the problem (community development and *panchayati raj*) have been too tentative and thin. For the most part they have been captured by the administrative hierarchy, on the one hand, and the traditional rural oligarchs on the other.

The sway and perquisites of the latter remain largely undisturbed, and to the average villager "government" remains something that reaches down from above, doing things to and for him, through an all-powerful official hierarchy, the last fully anointed member of which is a crisp district officer, usually in his 30's, a member of the Indian Administrative Service, almost always bright, usually energetic, who presides over the lives, on average, of 1-1/2 million souls.

A fifth feature of the terrain, however, points among other things to an approaching change (whether or not disorderly) in the fourth: A ferment of diversification, groupism, and localism is on the rise in Indian politics—from the bottom up. Much of the churning is confusing and some of it alarming.

Explicitly regional parties, of which the DMK in Madras is only the outstanding example, are stronger. Ostensibly national parties are accentuating their regional appeals. Conflicts over language have sharpened. Caste politics—bloc voting and bargaining, especially by lower-caste groups—have intensified, both within blocs of state Congress parties, dissident and otherwise, and among the plethora of opposition groups. And the lurking religious accents of Indian politics, e.g., in the cases of the Jan Sangh (northern Hindu nationalists), the Akali Dal (Punjabi Sikhs), and Gujarat's ugly Hindu-Muslim riots of September, 1969, have become less muted.

But the ferment has some general features. It is preoccupied with local, self-interested issues; in the economic realm it wants concrete, practical benefits—now. It is not particularly or systematically ideological in the classic sense. Most groups have some kind of socialist nomenclature, and among the bidders for their allegiance are the hard-line Marxists (themselves notably splintered). But the new forces are too indigenous and pragmatic to have much *a priori* susceptibility to traditional left-wing slogans and gestures.

At the same time, the ferment is predominantly lower-class. It is composed of a great variety of groups, each with a shared identity of past disadvantage and discrimination, which now sense the possibility of doing something about it, of raising their caste, communal, or group status. Accordingly they share the common purpose of bringing down the traditional status structure. In this sense the whole ferment is intrinsically and profoundly radical.

It should be noted, finally, that there is nothing in such a situation that is in principle inconsistent with the Indian development experiment. In theory the latter always has been aimed at a radical transformation of India's grossly discriminatory status system. As envisaged by Gandhi and articulated by Nehru, its commitment to constitutional methods of change, therefore, never entailed any devotion to status-quo political stability.

On the contrary, the theory has been that, within a context of sufficiently rapid overall expansion, constitutionalism could constrain the losers of privilege to accept their losses, to acquiesce in a radical liberalizing of the social and political structure, by orderly and peaceful means.

The theory—by no means wholly neglected in the considerable improvements in social mobility as well as economic opportunity made during the past 20 years—nevertheless got bogged down in the fact that the lower reaches of the Congress Party came to be manned by the rural oligarchs themselves.

This has prompted speculation that the very concept of rapid but peaceful change is self-contradictory in India. I prefer not to think so, but the new localized, diversified, pressure-group ferment, egged on by the contrasts posed by the green revolution, will be testing the issue in the 1970s.

IX

Ten Guidelines to Decision-making

The burbling enthusiasm that greeted bank nationalization from so many Indian quarters last summer bespoke a popular hunger for boldness on the part of government. But if I am right, gestures, slogans, and ritual nationalizations will not long satisfy what India now demands.

Mrs. Gandhi probably senses this too, but we have seen her predicament. She and her regime have an accelerating, hopeful economy, but they are financially inhibited from bringing its existing capacities to full throttle, let alone inducing the flank speed the 1970s invite. And politically, at a time calling for deft reform of centre-state relationships and perceptive adjustment to new forces, the Congress is warring internally while its parliamentary margins erode.

One of these days soon, however, an Indian government—either this one or a successor—may devise a response equal to the present challenge. For the situation is far from hopeless; on the contrary, its promise is what makes it exciting. It is interesting to speculate what the content of such a response might be.

It would entail, I should think, a special mixture of risk-taking, sophisticated shrewdness, and ideological unorthodoxy—coupled with some good luck as to the mood of aid donors. It would be, as has been said, a wholly focussed, relevant brand of radicalism. Its image and central thrust would be provided by a boldly expansive and expensive attack on low-end poverty.

But this would be guided and framed by a fairly extensive set of inner convictions, not all of which the agents of the new radicalism would make publicly explicit, but all of which would be clear in the leaders' own minds. As candidates for such guides to decision I would nominate ten propositions:

1. That the formula for political suc-

cess for central Indian governments hence forward will be to stand above the battle and yet maintain command—to keep disentangled from much of the diversified local squabbling and yet maintain broad majority support for its national lead on things that matter.

2. That the substantive key for implementing this formula will be a practical radicalism that brings tangible benefits to masses of the poor who, in their variegated groupings, have begun to assert claims politically; that tactically, therefore, as New Delhi builds the support of large parts of the jumbled array of newly aspiring groups for a few simple but compelling aspects of its programme, it must neither get tangled in the localized disputes that divide them, nor be over-nervous about bruising some of the intervening politicians, rural oligarchs, ideologies, or business-party donors who have been its traditional supporters. If the strategy works, enough of these latter will come along.

3. That the centre needs not only to acquiesce in the aggrandizement of the states, but actively to push upon them responsibility for final decision in many matters, especially economic. Most particularly, it needs to bestow much final development-financing responsibility upon state governments, trusting that most of them will be persuaded to collect more taxes, particularly from agriculture, if their overdraft privileges at the Reserve Bank of India are cut off and if central grants for popular programmes are firmly supplied on a matching-grant basis.

4. That, accordingly, India must set aside, at least temporarily, one of the more hallowed (although not actively implemented) goals of its welfare lexicon; namely, the equalization of incomes and welfare among regions and states. If Madras, Maharashtra, and the Punjab are disposed to run ahead of Kerala, Orissa, and Bihar—are willing to raise more resources for development, and are ready, therefore, to claim more generous central grants on a matching-fund basis—they should be let to do so (subject to the vital proviso in No. 6 below).

The primary purpose of the centre's assault on low-end poverty should be to shore up disadvantaged groups and classes within their respective areas, not quickly to equalize incomes between areas.

5. That it should be an active purpose of the centre in distributing grants to the states to attach conditions, including further delegation of responsibility and funds to local authorities and promoting effective self-government, particularly in rural areas.

6. That in its promotion of federalism the centre, however, should take great care to assert, maintain, and, where necessary, reclaim its dominance over those matters that are critical to the integrated functioning of the national economy as a whole system. Most urgently, in this regard, it should invest, and establish its pre-eminent interest, in the transport, communications, and energy infrastructure articulating the Indian common market.

It should be adamant in its insistence upon, and use all its moral and political authority to maintain, wholly free movement of commodities, services, capital, enterprise, *and people* among the states. (This last, for example, by allowing free migration to higher productive areas, can be an important part of the solution to the problems of the poor in dry-farming regions).

7. That it must become a pervasive habit of the central government to use market processes as guidance mechanisms in behalf of social objectives wherever possible; that indeed it should become the highest craft of Indian economic bureaucrats to see and exploit such opportunities (and to persuade would-be controllers in the state governments not to abort them unnecessarily); that, similarly, it is the part of a skilful government to get as much as possible of the planned investment programme implemented by private or thoroughly autonomous public enterprises; and that it will be a mark of statesmanship not to let tired socialist slogans interfere with this public purpose.

8. Most important of all, that the one and only source of effective radicalism in India presently is faster economic growth—therefore, that the alleged choice between equity and growth is a practical canard; that the worst disservice to the causes of equity and the poor would be moves, whether for purposes of ideological posturing or otherwise, that curbed or sapped the energies of the growth sectors and forces now active; and that in an extremely poor country with desperate low-end poverty, close budgetary choices between expansion and stability typically should lean towards the former—even at the risk, if worse should come to worst, of further exchange-rate adjustments later on.

In the latter regard, however, an Indian government that is adequately aggressive in its budgeting is obligated to be equally aggressive in its promotion of taxes and savings. And in a buoyantly expanding economy in which the government relied in part on the kind of centre-state financial relations outlined above, it might find the maintenance of a stabilizing fiscal policy easier than it had expected.

9. That, no matter how badly it offends present special interests and mental habits, a central government that seeks favour with the future must marshal policies that will help to give a hard cutting edge to the Indian economy in its commercial encounters abroad. (In large part this relates to the nexus among import competition, industrial efficiency, and export prospects noted earlier. In part it also concerns matters of scientific and technological policy for which there is no room in this piece).

10. That, finally, it would be the business of a purposefully radical Indian leadership to develop enough poise not only to seek out and accept (without self-doubts) as much foreign assistance as was useful, available and of reasonably good quality, but to persuade its constituents that receipt of such aid represented a sensible flanking attack on the kind of self-reliance most of them wanted.

Given this kind of policy-framing, the core of the radical programme would be what we already have imagined: a very ambitious but highly productive construction effort—rural and urban—angled at the low-end poor, laid on top of the ready growth performance of which the economy is already capable.

This could be coupled with a major strengthening and reorientation of primary education. It could incorporate a systematic national spatial strategy for development—a linked pattern of rural, intermediate, and city centres, which India still lacks. The programme could be married with population-control initiatives and with efforts to upgrade the nutrition of vulnerable groups.

It could be implemented largely by local authorities with rigorous enforcement of self-help financing standards at both the state and local levels and of such other (minimal) criteria—e.g., regarding planning and engineering, as appeared necessary.

Within a decade, in addition to keeping India's social and political revolution constructively aimed, such a programme could bring the economy closer to final self-reliance—as well as on a much higher growth track—than it otherwise would have been. And meanwhile it could make India, not just the second-largest, but about the most successful developing economy in sight.

You ask whether all this will happen.

One would have to bet no—less because of the Indians than of the aid donors—but hope yes.

The course suggested is largely a reconciled, accelerated synthesis of directions in which Indian leaders have been heading for some time. It would not be surprising to see them adopt it if they became convinced that the necessary external support were reliably available.

Few things may be more important to the destinies of the rest of us than that they have the opportunity to do so.

THE AMERICAN CHALLENGE

J.-J. SERVAN-SCHREIBER

Few books in recent years have had the extraordinary impact of "The American Challenge." It sold more copies in France than any other book published since 1945, and has been translated into many languages.

The author argues that Europe must take decisive measures towards political unity and economic-technical innovation to meet the challenge presented by U.S. industry's rising role in the European and world economy. The following article, excerpted from his book, raises issues which have implications for areas other than Europe.

One of the most prominent figures in French journalism, Jean-Jacques Servan-Schreiber is the founder and publisher of "L'Express," the news magazine, and "L'Expansion," a journal reporting on European business. His books include "Lieutenant in Algeria" and, most recently, "The Spirit of May," an analysis of the 1968 student uprising in France.

FIFTEEN YEARS from now it is quite possible that the world's third greatest industrial power, just after the United States and Russia, will not be Europe, but American industry in Europe. Already, in the second decade of the Common Market, this European market is basically American in organization.

The importance of U.S. penetration rests, first of all, on the sheer amount of capital invested—currently about $14 billion. Add to this the massive size of the firms carrying out this conquest. Recent efforts by European firms to centralize and merge are inspired largely by the need to compete with the American giants like International Business Machines (IBM) and General Motors. This is direct penetration. But there is another aspect of the problem which is considerably more subtle.

Every day an American banker working in Paris gets requests from French firms looking for Frenchmen "with experience in an American corporation." The manager of a German steel mill hires only staff personnel "having been trained

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with an American firm." The British Marketing Council sends 50 British executives to spend a year at the Harvard Business School—and the British government foots the bill. For European firms, so conservative and jealous of their independence, there is now one common denominator: American methods.

During the past ten years Americans in Europe have made more mistakes than their competitors—but they have tried to correct them. And an American firm can change its methods in almost no time, compared to a European firm. The Americans have been reorganizing their European operations. Everywhere they are setting up European-scale headquarters responsible for the firm's Continental business, with sweeping powers of decision and with instruction not to pay any attention to national boundaries. These U.S. subsidiaries have shown a flexibility and adaptability that have enabled them to adjust to local conditions and to be prepared for political decisions taken, or even contemplated, by the Common Market.

The Art of Organization

Most people in Western Europe think that the problem of American investment is so complex and technical that it ought to be left to financiers and economists. The question is almost never raised by politicians. Its implications are lost on those dealing in public affairs, and even on members of the government. Outside of a few experts, almost no one understands it. Terms like "technological gap" and "managerial gap" have become tired cliches even before we understand what they mean.

The problem is a subtle one for many reasons. It is not that we are being inundated by an excess of U.S. dollars which the Americans cannot use and which flow to the Common Market only because of temporary circumstances. On the contrary, it is something quite new and considerably more serious—the extension to Europe of an art of *organization* that is still a mystery to us.

Most striking of all is the strategic character of American industrial penetration. One by one, U.S. corporations capture those sectors of the economy most technologically advanced, most adaptable to change, and with the highest growth rates.

In the nineteenth century the first industrial revolution replaced manual labour by machines. We are now living in the *second industrial revolution,* and every year we are replacing the labour of human brains by a new kind of machine—computers.

A country which has to buy most of its electronic equipment abroad will be in a condition of inferiority similar to that of nations in the last century which were incapable of industrializing. Despite their brilliant past, these nations remained outside the mainstream of civilization. If Europe continues to lag behind in electronics, she could cease to be included among the advanced areas of civilization within a single generation.

What can we do about it? According to Boyer de la Giroday, an official of the European Economic Community (or Common Market): "Any attempt to discourage or restrict U.S. investment in Europe would only work to our disadvantage, both economically and technologically, without bringing us anything in return."

Countries that are weak and underdeveloped take extreme attitudes towards foreign investment. Either they supinely tolerate their own exploitation or they react violently by prohibiting such investment entirely and by nationalizing foreign firms. But a modern society like Europe can hardly afford to take such an attitude. Insofar as foreign investment merely reflects a superior technology, we could only nationalize the factory walls. You can't expropriate technical know-how and inventive skills.

A Restrictive Policy?

Any deliberately restrictive policy towards American investment in Europe would automatically substitute two further dangers.

First, a flow of manufactured products would replace the flow of capital, and even more easily since most tariff barriers were lowered by the Kennedy Round. After having raised walls against American capital, should we then build new ones against American products? This would merely assure our own underdevelopment. For most items of advanced technology, whose price is high because of the need to amortize research expenses, American products are virtually irreplaceable under current conditions.

The second danger would be the replacement of the investments themselves. American firms, irritated with restrictions imposed by the Common Market, would simply move, as they have often done already, to Britain, Scandinavia, Spain, and their free-trade-zone associates. This would allow them to benefit automatically from tariff reductions worked out between these countries and the Common Market.

In short, Europeans are faced with a dilemma that, without exaggeration, is of historic significance.

If we allow American investments to enter freely under present conditions, we consign European industry—or at least the part that is most scientifically and technologically advanced and on which our future rests—to a subsidiary role, and Europe herself to the position of a satellite.

If, on the other hand, we adopt effective restrictive measures, we would be double losers—denying ourselves both the manufactured products we need and the capital funds that would then be invested in other countries. By trying to be self-sufficient we would only condemn ourselves to underdevelopment.

A Problem of Power

What can we do? The problem of American investments is not an isolated case. It is only one special aspect of the problem of power, of the growing displacement of power between Europe and America.

If American investment is really part of the phenomenon of power, the problem for Europe is to become a great power. What today seems like an enormous "rummage sale" of our industry to the Americans could, paradoxically, lead to our salvation. As *Newsweek* put it, "Nothing is spurring Europe more strongly towards the means of her own rescue than the U.S. economic challenge."

Considering the extraordinary lead enjoyed by American industry in the key sectors of our economy, some economists have asked whether the fastest path to development might not lie in letting Americans manage our industries. In any case, this has been happening in Europe over the past few years, and there is little indication that it is about to change. From an economic point of view, isn't it the simplest solution?

In the short run, dependence is beneficial. American investment, although it is presently an instrument of domination, is also the principal vehicle of technological progress for our economies. It introduces manufacturing processes and management techniques that are new to us. Indirectly, it forces European manufacturers to a rationalization and modernization they would never have accepted without such competition.

The immediate economic effect of American investment is, therefore, quite positive. If we continue to permit American investment in its present form, Europe will share in the profits that foreign investors make from their high productivity. These profits spread throughout the economy, raising the general standard of living.

There is another argument for a liberal attitude towards American investments. Although an effort is being made to reorganize European production methods, a long time will pass, except in a few cases, before it is possible to offer workers the salaries paid by American firms. We ought to remember that if European industry is competitive in some areas with American industry, it is because our wage levels are only half of those in the United States.

But in the long run this will change. To ask if the Europeans should turn an increasing share of their industrial development over to the United States is like asking whether it is better to be a wage earner or a factory owner.

In any case, considering Europe's situation today, there is a straightforward answer to this question as far as the nation-state is concerned. Economic analysis shows that foreign investment imposes strict limitations on natural development, limitations inherent in the very process of industrial creativity.

The American investor is willing to manufacture in Europe only those products that have already been profitable in the United States. By giving the Americans a dominant role in the development of new industries, we condemn ourselves to second place in the race for economic progress.

Innovation and Productivity

Experience consistently shows that the inventor of a new product or process has a great advantage over his rivals in a modern economy based on rapid technological change. If he agrees to share his discovery with them, he can demand high royalties in return. For large corporations there is a direct correlation between profits and the degree of advanced research: *for the modern corporation, innovation is the major source of profit.*

Thus, the infusion of ever larger amounts of American investment into key industries has the short-term advantage of sparing Europe expensive research costs. But in the long run it deprives the European economy of the possibilities of rapid expansion that exist only in these key industries. The result is to reduce the profitability of exclusively European corporations, which are forced to pay increasingly high royalties for American patents and licenses.

In addition to this neo-colonial drain on our funds, there are the dividends that are continuously being sent back to the United States. These dividends already exceed the amount of new funds coming into Europe in the form of U.S. capital investments. This is a cumulative snowball phenomenon that is unlikely ever to slow down of its own accord.

What we are faced with is not classic imperialism driven by a desire for conquest, but an overflow of power due to the difference in "pressure" between America and the rest of the world. America's enormous power is widely felt, but little understood. It has been written about everywhere; yet it changes so quickly that descriptions are soon out of date. Here are a few examples of America's place in the world.

American industry produces twice the goods and services of all European industry combined—including both Britain and the Common Market—and two and a half times more than the Soviet Union, which has a greater population than the United States. It produces a third of the total production of all other countries in the world. The Americans have achieved this with only 7 per cent of the surface of the globe and 6 per cent of its population.

One third of all students in the world pursuing a higher education are American. The number of students, as compared to the total population, is double that of any other country.

All by themselves the Americans consume a third of the total world production of energy, and have one third of all the world's highways. Half the passenger miles flown every year are by American airlines. Two trucks of every five on the road are American-made and American-based. Americans own three out of every five automobiles in the world.

Advanced technology and management skills have raised per capita production in the United States to a level 40 per cent above that of Sweden (next highest), 60 per cent above Germany, 70 per cent above France, and 80 per cent above Britain. The driving force behind this power is American business. The combined profits of the ten biggest firms in France, Britain, and Germany (30 in all) are $2 billion. The profits of General Motors alone are $2.25 billion.

From 1961 to 1966 American corporations doubled the annual total of their investments. They did this in large part out of their earnings rather than from bank loans. In France, on the other hand, the growth rate of investments was about half that in the United States, and the amount financed by earnings has continually decreased (less than 60 per cent in 1966).

Strengthening the Common Market

If Europeans want to control their economic growth—and thereby their destiny—they can no longer afford the luxury of economic nationalism. The system we call socialism has little chance of achieving its attempt to build a modern economy within the narrow framework of the medium-sized European state. This is true not only for socialism, but for any political system based on consent—of which socialism is one variety.

To build a powerful and independent Europe means strengthening the economic and political bonds of the Common Market. No single nation is strong enough to support efficient production in all areas of advanced technology. The national framework is too narrow and cannot provide adequate markets for such products. Also, the growing diversification of these products demands a specialization that makes any attempt at national self-sufficiency virtually impossible.

The national scale is too narrow even when the state moves in to support certain industries. Areas like scientific research, aviation, space, and computers go far beyond the narrow confines of a single medium-sized nation.

If a country insists on getting along on its own national efforts, it either will dissipate its resources with little to show for it, as is the case with France and Britain, or it must concentrate its efforts on a few areas and not compete in others that are crucial to tomorrow's society, as Germany, Italy, and Belgium have done.

This is why any attempt at economic self-reliance by the individual European nations would simply mean their abstention from technological progress, and a stagnation that would eventually become intolerable.

If Europeans want to control their economic growth, and thereby their future, they will have to create a geographic and human atmosphere broad enough to allow economic expansion, and to stimulate the growth of private consumption, collective investment, and resources devoted to scientific and technological development.

Investment in Man

Ten years ago people did not ask *if* the Russians would reach the American standard of living, but *when* they would go beyond it. Experts who could hardly be suspected of sympathy for the Soviet regime speculated on the date when the two curves would intersect. 1970? 1985?

Today Soviet agriculture remains petrified in the kolkhoz system and commerce in the state-owned stores. The "great leap forward" took place in the United States, whose production increases every two years by an amount equal to Britain's total annual output, and whose capacity for innovation astonishes foreign managers and scholars alike.

Americans are not more intelligent than other people. Yet human factors—the ability to adapt easily, flexibility of organizations, the creative power of teamwork—are the key to their success.

Beyond any single explanation, each of which has an element of truth, the secret lies in the confidence of the society in its citizens. This confidence often seems rather naive to Europeans, but America places it both in the ability of its citizens to decide for themselves, and in the capacity of their intelligence.

This optimism which marks every aspect of American life is expressed in the confidence in universal suffrage for direct election of the President. We find the same confidence in the authority delegated to local government to administer everyday aspects of life and to make decisions in the fields of city planning, health, and education—decision-making powers that France's central government would be terrified to put into the hands of elected officials.

We see it again in the catalytic role of research, where ideas are not ornaments but tools to change the world. And nothing is more profitable than a good idea.

In the United States adult education is considered an investment, not a form of humanitarianism. Visitors from Europe have observed that American universities have been invaded by adults wanting to learn new skills. All cliches to the contrary, American society wagers much more on human intelligence than it wastes on gadgets. Scientific studies are beginning to confirm what intuition led us to suspect: *this wager on man is the origin of America's new dynamism.*

The Role of the Market

In European society, a scepticism towards man's potential is common to both the Left and the Right, but it involves opposite conclusions. On the Right it leads to the sanctification of the "natural laws of the market."

At a time when the nations of Eastern Europe are trying to get back to such economic mechanisms as the price system, interest rates, and profits, it is hard to deny that the market economy is, as Churchill once said about democrary, "the worst, except for all the others." It has its obvious limitations.

But where competition comes into play, the market provides services that a giant computer programmed by supermen could hardly perform. It points out consumer needs, regulates investment according to demand and cost of materials, and shows by means of deficits which production is unnecessary and which behaviour inefficient. The market takes advantage of freedom in a way that the Russians would like to be able to use themselves, so that they could get a better return from their economic system.

However, general decisions affecting the whole economy result from the statistical sum of millions of individual choices. Taken together, they are not deliberate and free. Rather, they represent an external restraint, a limitation imposed upon everyone by no one in particular.

"The Plan," said the economist Oscar Lange, "comes from the need to go beyond the limits of private rationality." It is an effort to reduce the element of chance and to direct growth towards deliberately chosen objectives. Thus it is an attempt to gain an added margin of liberty.

It is striking that conservatives are more attached to the fetters which the pure market economy imposes on the collective will than to the freedoms it provides for individual initiative. Even today they are apt to ask the government simultaneously to release them from the discipline of the plan and also, by closing professions or frontiers, to spare them the risks of competition. They are partisans of a society where strongly accentuated "natural hierarchies" are perpetuated by heredity or by entrenched positions.

On the Left the same distrust of man leads to a cult of coercive planning. Many "progressives" still dream of setting up a society where an omniscient bureaucracy, the repository of moral order, will dictate to consumers the enlightened decisions they are incapable of making for themselves.

Planning and Freedom

To listen to them, it would seem that the mass of people want only to make their hovels more ugly and their cars more beautiful, that the real reason for the housing crisis is not so much the rigidity of rent control and the chaos of the real estate market as an insatiable appetite for immediate pleasures, intensified by a docile obedience to advertising.

The Left neglects to seek remedies in better information and more effective competition that would lead to increased freedom. It has got into the habit of reinforcing regulations and putting economic activities under rigid control.

When they speak of the excesses of "the consumer society," many intellectuals of the older generation are really attacking the consumer's right to determine his own needs. The condemnation of this small, but precious, aspect of economic democracy indicates a resurgence of "enlightened despotism."

An elite convinced of its own wisdom is certain it has the right to impose its own preferences through specific restraints. It would even be ready, so it says, to restore poverty in order to protect the masses against the moral risks of growth in an atmosphere of freedom.

The choice of "good management" for maximum growth is not primarily a technical choice. It depends, first of all, on the answer to the question: do we or do we not have confidence in the maturity and intelligence of the majority?

Until now Europe has answered no. If it decides to say yes, this choice would have unlimited consequences and could change the face of our societies. This act of confidence would be the single source of three policies that form a unity: investing in man's intelligence, liberating his initiative, and seeking a conscious choice of our collective future.

We can ask for both more planning and more freedom without getting involved in a political battle of words. "The dialectic between the Plan and the market has become much more refined," says Francois Bloch-Laine. "By combining American developments in management with French experiments in flexible, coherent planning, we can be revolutionary simply by being more aware of what we are doing."

Despite traditional ways of thinking on both the Right and the Left, liberation of initiative, and control over acts which open the gates to the future, are two parts of a single emancipation. It goes without saying that there is no end of difficult reconciliations to make between the freedom of individuals and the strategy of the government. But experience denies that there is a fundamental antagonism between the two.

THE MULTI-NATIONAL CORPORATION

RAYMOND VERNON

The rise of multi-national corporations and the increasing foreign involvement of business generally create a major dilemma: how can countries reap benefit from such enterprises without giving up substantial elements of national sovereignty?

The author sees no single solution in sight, but suggests that there are ways of keeping the problem in manageable proportions. His article is abridged from "Daedalus."

Currently professor of international trade and investment at Harvard's Graduate School of Business Administration, Raymond Vernon also directs the university's Development Advisory Service. His books range from urban problems ("Metropolis, 1985" and "The Myth and Reality of our Urban Problems") to international economics ("Organizing for World Trade" and, in 1968, "The Manager in the International Economy").

THE IMPACT of United States business enterprise upon foreign countries is large and growing. And although there may be pauses there is every reason to suppose that the impact will grow larger still.

For the most part, the foreign investment of U.S. firms appears in industries that are dominated by a relatively few large enterprises. Petroleum, chemicals, machinery, and transportation equipment are heavily represented. Food processing and tobacco also are very much in evidence. But such industries as textiles and furniture are not.

There are a few industries, such as the computer industry, in which U.S.-owned firms actually have dominated in the economies of foreign countries, but dominance of this sort has been exceptional.

Still, because of the emphasis on the dynamic industries, the subsidiaries and affiliates of U.S. enterprises have had an impact upon the national economies of their host countries that often was quite out of proportion to the size of the investment. To understand the nature of some

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of these effects, an introductory word or two on the character of the corporate entity itself is necessary.

The corporation of the 20th century, one has to be reminded from time to time, is a revolutionary institution, endowed with powers of an extraordinary kind. For many centuries, the jurisprudence of Western nations had resisted the creation of institutions that might have the power to control property over prolonged periods of time. Accordingly, as recently as two centuries ago, corporations were a rare and special thing.

Not until the middle of the 19th century did some jurisdictions, pushed by populist pressures, begin to permit the creation of corporations under general enabling statutes, and not until some decades later did limitations on size, life, and purpose begin to disappear. As a result, for almost the first time, it was possible to envisage a business entity that possessed immortality.

Being immortal, the corporation became independent of the finite life cycle of its entrepreneurial creator. It could attract professional managers whose commitment was to the survival of the organization, and it could stretch its credit-worthiness and its supervisory reach beyond the limits that any individual businessman could hope to attain. For an ambitious and gifted few, those endowments offered unparalleled opportunities.

The Corporation and the National State

By the end of the 19th century, the big public corporation was ubiquitous in American life. Most American corporations, of course, still were fairly small, and most of them continue to be small to this day. But the big corporation dominated the domestic industrial scene. What is more important for the purpose of this essay is that the big corporation was the principal vehicle for direct overseas investment in subsidiaries and affiliates.

Encouraging this movement of U.S. business abroad was the decline of the concept of unambiguous national identification. Most sovereign states today permit the corporations created under their laws to own other corporations or to be owned by them. Each parent, sibling, or offspring in the group may have its own juridical identity, its own assets, and its own liabilities. Accordingly, the "firms" that are heavily engaged in foreign investment actually consist of a group of corporations of diverse corporate nationality.

It would be an error, however, to regard such firms as a consortium whose units are simply drawn along national lines. Foreign business now generates a considerable part of the total income of large U.S. parents. Although few yet obtain as much as half their total income from this source, a figure of one fourth or one fifth is fairly common. Accordingly, the tendency to regard such business as a normal, undifferentiated part of the total business of the corporate system has been growing rapidly.

It is true, of course, that the non-U.S. managers in these corporate groups are usually assigned to subsidiaries located in their home countries. But there are some signs of growing exchangeability of personnel. Managers recruited in the advanced countries outside the United

States are being invited from time to time to serve in third country subsidiaries. Occasionally, they are being allowed to mount the main career ladder of the corporate system to its summit, including key positions on the staff of the U.S. parent.

Even more important as indications of the integrative process are the changes that seem to be going on in the internal structures of the corporate systems. There was a time when such systems tended to lump the business done outside the United States indiscriminately in an "international division," separated from the mainstream of the system's affairs.

The international divisions, however, are now giving way to new organizational structures—structures that eliminate the domestic-international dichotomy and group the firm's business by product or market.

How does one predict and describe the overseas effects of the corporate systems I have been describing? It would be difficult enough to generalize if the firm were a simple profit-making entity. As the product of a complex coalition, the firm's behaviour is even more difficult to fathom.

But one does see certain regularities, and these regularities are worth some attention for what they may reveal about the underlying forces. Let me turn first to the less-developed areas, then to the advanced countries.

Foreign Investors and Developing Nations

Until a few decades ago, most of the producing activities of foreign enterprises in Africa, Asia, and Latin America were limited to the simple purpose of raw material extraction. While most of these areas were colonial, some were independent. From the viewpoint of the independent governments, foreign investments generally were quite consistent with national objectives.

In those years, any effort to extract significant quantities of minerals or agricultural products for export usually involved large amounts of capital and high risk. Few local entrepreneurs were prepared to take the risk, especially if the sale of the product demanded access to foreign markets. Therefore, the cost to the economy of granting permission to foreigners to exploit the resource was generally thought to be low. At the same time, the value to the country of receiving benefits early rather than late was usually considerable.

Using the yardstick of current national objectives, foreign investment in those early days did provide certain limited "benefits" to the underdeveloped country. Infrastructures such as roads, rails, and power plants, designed primarily to support the foreign investor's activity, tended as a rule to support the growth of the internal economy.

Training that was needed to build up a class of minor supervisors and technicians contributed in the end to a pool of manpower for the essential modernizing activities (including, in some cases, the revolution of the developing country).

But while foreign investors often contributed to social and economic change, many of them tried to block any political expression of that change which might endanger their business operations.

The transition to the modern era of

relations between foreign raw material investors and less-developed countries took place partly in the interwar period (1920-1940). The three essential ingredients originally provided by the foreign investor in the raw material field—capital, technology, and markets—no longer seemed quite so indispensable to the host.

After the first injection of capital, any added funds usually came from the earnings of the operation itself. After the first introduction of technology and organization, the mystery of operating a producing enterprise seemed less and less opaque. Only the marketing problem lay beyond the apparent capabilities of the local economy; and even this aspect of the business was not quite so overwhelming as it had once seemed.

A New Bargaining Position

Accordingly, as concession terms were negotiated and renegotiated, the bargaining goals of the less-developed countries—and their share of the profits—were repeatedly raised. By the early 1960's, host governments had managed in some cases to impose costs and taxes on foreign raw material investors that were so high as to cut seriously into the investors' profits.

More than that, there was an increasing disposition on the part of host governments to become involved in the day-to-day business activities of the foreign enterprise. In some cases, foreign investors were regularly required to justify their production, pricing, and marketing policies.

In other cases, taxes and other payments by foreign investors were taken in the form of a share of output and were marketed independently of the foreign taxpayer. In still other cases, foreign investors were being required to set aside portions of their output for buyers designated by host governments.

The prerogatives of business management, once the clear and undisputed preserve of the foreign investor, began to be shared. As far as some foreign investors were concerned, these developments were annoying, but they were not fatal. The strategy of the business still suggested the wisdom of maintaining a controlled supply of raw materials.

For other investors, however, some of the advantages of overseas raw material investments were badly impaired by the new developments. At some point, one could picture the investor moving across a watershed, to a point at which he saw advantages in divesting himself of the remaining elements of his raw material control.

This would not occur unless the sources of supply had become sufficiently diverse so that buyers no longer felt imperilled by the lack of a tied source of supply. At some point, however, foreign producers of some commodities would presumably be content to become arms' length buyers, dealing with their erstwhile host government on the basis of open market prices.

Foreign investment in manufacturing facilities in the less-developed areas, however, is quite another matter. The capital, the technology, and the markets that foreign investors have to offer continue to be vitally important to the less-developed countries. If a single generalization were justified, one would have to say that the negotiating position of foreign-owned manufacturing enterprises in the less-developed world was being strengthened, not weakened, with time.

Most decisions by foreigners to establish manufacturing facilities in the less-developed world have been acts of reluctance, defensive steps forced on the investor because of the threat that import restrictions might cut him off from an existing or potential market.

At first, the investor usually preferred to establish packaging and assembly plants, rather than plants that produced their own components. Once involved, however, his willingness to accept commitment expanded.

In any case, persistent pressures from the host government usually obliged the investor to deepen his commitment. Little by little, therefore, investors turned to using domestic materials rather than imports and domestic skilled labour rather than expatriate technicians.

Local Reactions

Local reactions to the presence of the foreign manufacturer enterprise in the less-developed countries have been predictably ambivalent. As seen through the eyes of local private sector, the foreigner who is producing a superior version of an existing local product is patently "unfair." If he is elbowing the local product aside by heavy advertising, this is even more objectionable.

On the other hand, if he is engaged in some non-competitive venture, such as the assembly of automobiles, his potential demand for locally manufactured parts may be more important to local business than his pre-emption of the automobile market. In that case, the political strategy of local business is generally directed at exploiting the existence of the foreign facility as a buyer.

The bargaining positions of the foreign investor and the host government tend to change over time. Technology that once was new and esoteric, such as that embodied in petroleum refineries, eventually becomes available to the less-developed country in the form of packaged plants for sale on a turnkey basis. Markets that once were small and insignificant, as far as the foreigner is concerned, eventually become glittering prizes. So some elements in the host government's bargaining position seem to strengthen.

At the same time, however, the governments of less-developed countries confront new needs. As their economies grow and become more complex, their technological requirements, their capital needs, and their exporting aspirations change as well. Each step forward exposes such countries to a need for technology, capital, and markets that can weaken their bargaining position in relation to the foreigner.

The continuous change in the negotiating position of the foreign investor creates an atmosphere in which some uncertainty and risk seem always present. While numerous proposals aimed at altering the atmosphere have been made, few of them seem likely to produce the desired result.

Perhaps the most persistent proposals of all are those that look to some kind of partnership between the foreigner and local interests. The partnership concept is embodied in various legal forms, such as management contracts, licensing arrangements, "co-production" schemes, and joint ventures. But it is unwise to assume that where inherent conflicts of interest exist between the economy of the host country and foreign investor, such partnerships lead to policies that are more favourable to the host country.

Consider, for instance, the widespread assumption in less-developed countries that foreign parents draw profits out of their wholly-owned subsidiaries at a rate that is higher than if the subsidiary were a joint venture. The fragmentary evidence that exists so far suggests a much more complex pattern, rather more at variance with the assumption than consistent with it.

Parents seem inclined to take a more relaxed attitude towards wholly-owned subsidiaries than towards joint ventures when fixing their royalty, price and dividend policies. And when the facilities of the international enterprises in less-developed countries begin to be more widely used for export purposes, as I think they will be over the next decade or two, I anticipate that parent companies will assign a larger export role to wholly-owned subsidiaries than to joint ventures.

Response of Industrial Nations

The dilemma of wanting the benefits created by foreign-owned enterprises while attempting to retain full control of the national economy is even more evident in the advanced countries. When foreign-owned subsidiaries representing a large multinational system have appeared in an advanced country, the local business community has tended to react in much the same way as its counterpart in the less-developed countries.

Local businessmen have been quite content to accept new sources of complementary business, but they have bridled at the threat of rough, undisciplined competition. The sense of threat has been accompanied by a touch of resentment as well, because the competitive strength of U.S.-owned enterprises is usually felt to be based on "unfair" advantages of various sorts, arising out of their size and their international spread. Further, the sheer unfamiliarity of local businessmen with the behaviour patterns of a new participant has created raw nerves and heightened tensions.

The governments of advanced countries, like those of the less-developed nations, have had rather complex reactions. On the one hand, practically all governments have responded sympathetically to the complaints of the local private sector. On the other hand, most of the advanced countries have now concluded that they cannot follow an isolation course—that their interests lie in fostering a large-scale exchange of goods, capital, and ideas with other countries.

Behind that judgement there probably lies another—that the modern state needs so many highly specialized inputs of skill and materials that no one nation can possibly hope to provide efficiently all its needs from within its own borders. These judgements and the policies accompanying them have led to a swiftly growing exchange of manufactured goods among such countries.

Still, governments in the advanced countries are visibly reluctant at times to accept foreign-owned subsidiaries. While recognizing that the subsidiaries of foreign companies may bring advantages to the economy, host governments fear that the advantages may be just as summarily withdrawn.

An international manufacturer, having found that a subsidiary no longer fits very well into its global strategy, can begin to shrink the activities of the subsidiary and to transfer them to some other location. Or, having decided that the profits generated by the subsidiary can better be used elsewhere, he can quietly draw off the surplus brains for employment in another part of the international structure.

The same sort of governmental worry exists with respect to the enforcement of national policies. Governments have a nagging concern, not without foundation, that local subsidiaries attached to foreign parents have considerable flexibility in expanding or contracting their money balances and inflating or reducing their stated profits. They may not exercise that freedom to the detriment of the local economy, but the very existence of the choice is a source of unease. Constantly in the mind of the monetary and fiscal authorities is the question whether they are capable of applying their respective policies to these local subsidiaries.

An Ambiguous Coalition

Some of the worries of governments on these lines may be ill-founded, but some are obviously thoroughly justified. Governments are right to assume that the affiliation of a subsidiary with an international group must have some significant effect on the subsidiary's capabilities and behaviour.

Where governments may be in error, however, is in assuming too readily that the subsidiary is a puppet on the end of a string, incapable of conditioning either the nature of the command it receives or the response it provides.

Recall that the multinational corporate group embraces a coalition. The company's vice-president for Europe (or Africa or Latin America) presides over a domain that he feels committed to protect. The desire of the coalition to keep his loyalty and participation is likely to restrain it from imposing its collective fiat, even if the action seems to make sense from a profit-and-loss point of view.

Nor should one underestimate the capacity of widely dispersed subsidiaries to resist the instructions of the centre, whenever those instructions seem stupid or threatening. The subsidiary possesses facts which the centre cannot hope to have and alternatives of which the centre cannot be aware.

How extensively the subsidiary exploits its advantage in order to protect itself depends on the cultures, habits, precedents, and personalities that are involved. But the folklore of multi-nation enterprises is full of anecdotes in which remote agencies in the field managed to have their way over the blindfolded centre.

The trend towards ambiguity, compromise, and accommodation within the multi-national enterprise may grow just as rapidly as the forces tending towards integration and coordination. But these compromises and accommodations among the various elements will not be organized primarily on national lines. The disputants are likely to associate their interests much more with products or functions or with geographical units that bear no correspondence to national boundaries.

Future Directions

We have so far come back to one basic point: sovereign states feel the need for the resources that multinational enterprises have to offer, but are loath to give up the national control that may be involved in securing those resources.

A second point has also emerged: although the enterprises involved are usually thought of as U.S.-owned, their identity is likely to become more and more ambiguous in national terms. However, even after such a development has become evident to the detached bystander, I would guess that its existence is likely to be denied both by the nation-states and by the enterprises involved. There are certain deep-seated and tenacious forces that compel both governments and enterprises persistently to refuse to recognize any such tendency.

Thus opinion leaders in many countries where U.S. investment is located are aware of the intimate ties that usually exist in their own home countries between their governments and "their" enterprises operating abroad, ties that effectively restrain independence of action on the part of either side.

Attempts to impart to such a well-conditioned audience the full flavour of the ambiguity, conflict, and independence that shape government-business relations in the United States are overwhelmingly likely to fail. Evidence that the ambiguity may be growing is unlikely to remove the conviction that the objectives of U.S. parent companies abroad and those of U.S. government are intimately coordinated.

Nor are the agencies of the U.S. government itself much more disposed to entertain the possibility of increasing ambiguity. Each such agency has its needs and objectives in the foreign field.

Some, like the Treasury Department and the Commerce Department, are eager to enlist the "voluntary" or statutory cooperation of firms in such programmes as increasing U.S. exports, controlling the flow of capital funds, restraining trade with Communist China, and so on. Such agencies can scarcely regard with equanimity the view that the subsidiaries of U.S. parents abroad may not be unreservedly available in the future to serve national ends.

Finally, the firms themselves may be reluctant to recognize and articulate the subtle changes in identification that are suggested here. Conditioned to the view that national identity is absolute and unequivocal, they will be loath—understandably loath—to confront overtly the implications of an uncertain and ambiguous identity.

My guess on this critical point may prove wrong, so I proceed to a second. Even if the nations and enterprises concerned should explicitly recognize the growing change in the character of multi-national enterprises, I see no reason why such a response would reduce the tensions.

Mere recognition will not reduce the expectation that there are to be rival efforts by sovereigns to influence or control the subsidiaries of U.S. parent corporations. Nor will sovereigns draw much comfort from the fact that multinational systems look with equal favour on the use of the personnel and capital of all countries. Such internationalization is likely to generate complaints about a growing drain of managerial talent and of capital funds.

Reducing Tensions

How, then, can the tensions between national sovereign and the multinational enterprise be reduced?

Some elements of the problems are less tractable than others. It is hard to see, for instance, what one can do about the skittishness of the local business community over the putative strength of U.S.-owned subsidiaries.

On the other hand, it may be possible to deal with other sources of the tension, notably the fact that the subsidiaries are subject to the commands of more than one sovereign state.

The subsidiaries have a stake in avoiding a situation in which they receive conflicting demands from different sovereigns, and the sovereigns have a stake in ensuring that the multinationality of the enterprise is not used by other states for purposes that contravene national objectives.

There are three main approaches to the problem. First, governments can agree on the limits to which they will extend their jurisdictional reach, so that conflicts of jurisdiction are reduced. Secondly, they can agree on the application of uniform codes, so that conflicting standards are less common. Thirdly, they can surrender up their sovereign powers to the ministrations of some superpower.

A recent agreement among the member countries of the Organization for Economic Cooperation and Development, undertaking to consult in the application of national antitrust laws wherever important interests of another member country are involved, represents an embryonic application of the first approach. The standard bilateral tax treaty, coordinating the application of national tax laws, is conceived in the spirit of the first two approaches. Proposals for a "world-wide corporation," chartered and monitored by some supranational body, are generated in the spirit of the third approach.

Eventually, there will be a need to pursue the possible ramifications of the third approach, that of the supranational authority. Enterprises that are global in scope do seem to deserve a regime in which they are responsive to authorities whose scope is just as broad.

At this stage, despite the discussions of world corporations, of world-integrating taxing authority, and of world-harmonized capital movements, there is almost nothing to suggest that the approach has immediate promise.

But while awaiting a more propitious day, there is much that can be done to reconcile the concept of the multinational enterprise more effectively with that of the nation-state.

BEYOND THE NATION-STATE

FRANK TANNENBAUM

All past efforts at international organization, writes the author, have failed because of the fears and rivalries of nation-states. But the emerging multi-national corporations offer a practical basis for future world government, he argues, since they are more interested in the realities of industrial and commercial service than in the symbols of sovereignty.

This highly unorthodox, controversial, yet visionary thesis is typical of the late Frank Tannenbaum, who combined a distinguished career as economist and historian with crusading zeal for such causes as the rights of labour, prison reform, and racial equality.

Professor Tannenbaum's books include "The Balance of Power in Society," "The Philosophy of Labour," "Ten Keys to Latin America," and "Slave and Citizen: The Negro in the Americas." His article is excerpted from the March-April 1968 issue of the "Columbia Journal of World Business."

EFFORTS TO organize the world for peace past and present have always broken down in the end. This is a simple statement of the historical record.

One cannot argue lack of good will or honesty of purpose, or lack of a genuine desire to achieve an effective international body that would take on itself the role of peace-keeping. But, as the whole world knows, successive efforts have been frustrated.

There are many reasons why this has happened. Human affairs are complicated matters. They have been shaped and influenced by a myriad of "causes" which taken together have given us our present dubious heritage — a threat of human annihilation, and an apparent inability to stem the drift towards converting the threat into an imminent convulsion.

Man seems to have no effective instrumentality at hand to reverse the armaments race or to stop him from the last decision he would probably ever be called upon to make—give the signal that would release thermonuclear warfare.

The mere statement of such a pros-

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pect raises fundamental questions of why this possibility is upon the world. It will not do to blame it on the scientists who learned how to split the atom and manufacture the atomic bomb. The problem is not a scientific one. It is not even primarily military. It is political, because it involves the nature and function of the state itself.

The modern nation-state is of relatively recent origin. Some historians trace its emergence to the European Reformation in the 16th century. Others mark its beginnings at about the time of the French Revolution, or as one of its consequences.

Be that as it may, the primary definition of the modern nation-state is that it can protect its citizens from external attack and maintain internal order. The emphasis upon protection from external aggression has most clearly set the tone and defined the character of the modern state. Nationalism requires the ability to keep the state absolutely sovereign, which in essence means the ability to impede any intrusion upon its territory, interests, or dignity.

In a world of competitive nation-states questions of national security became the prime consideration. The First and the Second World Wars were logical by-products of this system; so is the Cold War; so is the armaments race; so are the struggles in various parts of the world over the past two decades.

In each case the attack is against a "sovereign nation" to subjugate it, to impose upon it another loyalty and, even, another system. Fear of conquest governs the political attitude of all nation-states towards the rest of its world.

Failure of International Bodies

The attempts to form international organizations have not seriously changed the nature of the system or the relations of the states to each other. Before it collapsed in 1939, the League of Nations had witnessed Mussolini's attack upon Ethiopia, Japan's invasion of China, the Chaco War in South America, and other conflicts as well.

More recently, the United Nations has seen numerous small wars, the blockade of Berlin, the Korean War, the war in Vietnam, the danger of war between Greece and Turkey over Cyprus, and the conflagrations in the Middle East, to mention only a few glaring examples. And one should not forget the confrontation over Cuba between the United States and the Soviet Union.

An organization of the world made up of sovereign states is not a satisfactory base for maintaining international stability. Each member in any real crisis, or even in lesser matters, acts in accord with its conception of its own interests. There is no evidence that an enduringly effective international order can be built on the political unit we know as the nation-state.

If, as some assume, the movement towards European unity suggests a decline of nationalism, then in the present state of affairs it would simply be replaced by a larger nationalism. The appearance of an all-European nationalism would not necessarily advance an international organization; it might even make it more difficult to approve the surrender of a larger sovereignty which would be involved.

The point really is that international organization cannot be built on the nation, or a combination of nations with national characteristics. It must have a different genesis.

If we are ever going to have an international order, then it will have to rest upon some other base than the nation-state, preferably one that is extra-national by its very nature; one that bypasses the problem of national security.

Such a base does exist and is growing rapidly. It comes from a recently-evolved and expanding body of international organizations which are supra-national in their very existence, plan and purpose. Their managers, governors, authorities think in extra-national terms; their personnel is indifferent to the nation-state except as an impediment.

The Corporation and World Order

This extra-national body is the corporation—the extra-national corporate body, as I would prefer to call it. Others have called it the multi-national corporation—or even the "cosmocorp."

It is natural because it has its origin in performing a needed function. It is as natural as was the slow growth of a trading and commercial community that in the end created the nation-state as a substitute for medieval order.

Other extra-national institutions have long existed. Religious bodies like the Roman Catholic Church, the Greek Orthodox Church, scientific bodies, the International Red Cross and hundreds of other corporate bodies exercise jurisdiction over property, have thousands of employees, have contractual relations in a hundred different countries, have their own internal systems of discipline, their own financial and administrative arrangements.

They make rules and regulations that affect the lives, comfort, convenience and fortune of thousands of people in many parts of the earth. These bodies govern the enterprise under their control and in doing so, exercise powers that border on the sovereign.

None of these religious or charitable organizations have demonstrated the vitality and growth of the ubiquitous business corporation. An international telephone company provides a good example of a business penetrating national considerations. It is indifferent to national boundaries and unconcerned about national security. It becomes aware of the state for the most part as an obstruction. Its servants are only involved in fulfilling a function wherever it needs to be satisfied: in the Sahara, Switzerland, Vietnam or Paraguay.

This is equally true of the international airline company. Its pilots, mechanics, ticket agents, financiers, passengers, may come from any and all places. Its concern is with speed, safety, schedules, costs, landing fields, trained pilots, weather control, absolutely effective communication.

The questions that bother the nation-state—security, national interest, customs, tariffs, fear of invasions, danger of violations of the border—are matters of irritation or indifference to international airlines, as they are to international banks or to such commercial and distribution companies as Unilever, Philips Lamp, Standard Oil Company, Shell, and others.

When an international airline company decides to establish a terminal in a new nation for the first time, it has performed an act of potentially greater import to the body politic of that nation than most acts of the government.

When an international bank decides to make a loan, it exercises a judgement the political consequences of which may prove great indeed—it may save the government from being overthrown, or it may stimulate an industry that will provide employment for many, increase the national income and raise the standard of living.

Sovereignty and Service

When an international oil company opens up an oil field, it may change the face of the nation and lay the foundations of a modern society. In doing so it exercises authority equal to, or in some instances greater than, the local government.

It makes contracts, acquires land, lays pipelines, develops communications and roads, brings in a great variety of skills which are gradually passed on to the local population, changes the social structure of the body politic, stimulates a labour movement, a skilled working class, a middle class of distributors, a wealthy class of lawyers, politicians and local participants.

By the royalties and taxes it pays, the international corporation helps the government perform those services expected of it in a modern society. The government can build schools, expand its university, develop a national road system, etc. The powers of the corporate body are very great but its influence upon the society in which it operates may be greater.

The acts of a supra-national corporate body have in effect the characteristics of a sovereign state. They may be unavoidable—such as the need for the right of way for a pipeline which has to be provided or the corporate body will not be able to function in this place, just as the government cannot build a highway unless its legislature will authorize the funds and the courts uphold the rights of eminent domain.

The international oil corporation, the international communications corporation, the international bank are natural bodies. They are called into being by the need in our time for the functions which they and they alone can perform, functions more essential than that of sovereignty, and without which a modern society would be seriously crippled. The nation-state cannot run the international tele-communication system, or the international airline system, or the international distributing system.

The picture is obscured by the presence of a few large nation-state powers like the United States and the Soviet Union. They seemingly could do many things for themselves, though probably not as efficiently. But the smaller political bodies in Latin America, in Europe, in Africa and Asia are largely dependent upon the international corporation for their participation in the world economy.

This corporate body of which we have been speaking is increasing in number, in power, in prestige, in size, in the areas of modern enterprise that it embraces.

Its purpose is service for profit—in response to manifest needs—and it has a "life everlasting" as long as the service needs to be performed.

Its ownership is irrelevant, for the owner does not either manage or control it except in legal fiction, and it can be owned by people all over the globe. Its management can be drawn from wherever competence is to be found; its profits may be distributed among owners in all nations; its technical personnel and labour force can be, and often are, completely international.

Independence from Politics

Equally, or more significant, the international corporate body is devoted to the performance of an international function. Its primary commitment is extra-national. It has little concern with boundaries, national interest, local cultural pride, regional idiosyncrasies except as they favour or hinder the performance of the function for which the corporate body has come into existence.

The international communication corporations will go on no matter what the political map will look like fifty years from now. The functional service is more durable than the political form or territorial prescription. The telephone system operates in both East and West Germany, in both North and South Korea.

We thus really have two systems of "sovereignty" in the world: the nation, and the supra-national corporate body. The first is on the defensive, probably on the decline, anxious over its security and even its survival. The second is growing in influence, and is increasingly depended on by smaller nations to support their efforts toward economic development.

A Question of Time

Time is the essence of change and transition. How long will it take for the corporate body to be so evidently the international structure as to make the formal legal organs contrived by the nation-state irrelevant because the state itself will become irrelevant to international dealings?

It took many centuries before the commercial revolution gradually evolved a middle class that found the feudal order unacceptable and gradually contrived the nation-state to serve its ends.

One cannot assume that so profound a structural change as here envisaged can go on without political implications, and without a shift in political power. It is difficult to see the way this shift of political power will occur—but that it will take place there can be little doubt. It would have been equally difficult to foresee the modern state in the glories of a feudal society.

How long will it take? Will the nation-state hold on long enough to permit this to occur or will it destroy itself and mankind as well? What about Russia and China? The answer here, I think, is clear.

If Russia and China are going to become industrialized in the sense that the United States is industrialized, then they will go the same way—the international corporate body will reach over into the closed state as in some measure it already does. The international corporate body is a natural functional institution and it can only be kept from its role if there is no extensive industrial development.

It is a question of time. No one can say whether man will allow himself the mercy of surviving long enough to find a way of transferring international political powers to the corporate bodies that have come into being unwittingly, whose commitments are primarily functional, and therefore indifferent to the issues of national security and sovereignty.

VALUES MEASURED FOR LOCAL LEADERSHIP

PHILIP E. JACOB

The International Studies of Values in Politics (ISVIP) recently completed five years of research in India, Poland, U.S., and Yugoslavia to determine how local leaders influence community activities. Teams of scientists in each country conducted their own research after devising together their questionnaires and methods. In India the I.I.T. (Kanpur), the University of Poona, and the Centre for the Study of Developing Societies (New Delhi) cooperated with ISVIP.

Dr. Philip E. Jacob, director of the project, provides in the following article a first public look at the methodology used and the findings. Professor of Political Science in the Wharton School of Finance and Commerce, University of Pennsylvania, Dr. Jacob is widely known for his studies of international law and organizations, systematic political theory, and university education.

WHY DO some communities grow and others stagnate? Why do some demonstrate a common purposefulness and an ability to act vigorously to satisfy social needs; while in others people split apart, nurse separate interests, and fail to respond to civic goals? Why are some more parochial, preoccupied with local problems; while others respond to broader regional or national concerns?

Such questions, relating to the phenomenon of community integration or the lack thereof, have been the subject of the International Studies of Values in Politics, a five-year programme of comparative cross-national research now nearing completion—in India, Poland, Yugoslavia and the United States.

The immediate objective of the project was to determine *the influence of leaders' values on the integration of local communities.* Can we predict the pace and direction of a community's

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development by measuring the values of its leaders?

The choice of the local level as the focus of investigation—American municipalities and their counterparts in other countries—was made because of a conviction that the dynamics of social action and change originates largely at the bottom of a society. The essential human motivations of stability or turbulence, social solidarity or disintegration, may be missed if one looks at countries as a whole rather than at the base of the political pyramid where people interact directly with each other.

Underlying this set of studies was the thesis that values, i.e. norms or standards, are so important a component of human behaviour that no explanation of social behaviour and institutions can be adequate if it does not demonstrate the extent to which people's actions reflect particular values or patterns of value they hold and profess.

This is especially the case with the study of communities and their development. Emphasis on the structure of status and power as an overwhelming, almost independent force shaping the conduct of men in society has tended to conceal the reverse process: namely, that human beings themselves mould the social structures in which they function.

On the other hand, the design of the project provided that the role of leaders' values in community integration would be challengeable by alternative explanations, based on environmental variables—such as the level of affluence or resource base, the character of the political system (especially the amount of local autonomy prevailing) and certain features of the structure of influence in the community.

Control for these factors was secured through the selection of four countries with sharply divergent political, cultural and economic conditions, and the amassing of a substantial body of aggregative data on social and economic conditions, permitting differentiation within a sample of 30 localities chosen in each country.

Essential to the success of this kind of study was its distinctive pattern of organization. The project became, in effect, an international cooperative in which design, execution and analysis of the studies were jointly planned and conducted by teams of social scientists from the four countries under sponsorship of the International Social Science Council (the official coordinating body of the international social science professional organizations).

This experience has confirmed the feasibility—indeed it is an essentiality—of applying the joint enterprise pattern to the organization of cross cultural comparative research, especially for studies of political decision-making and community integration.

Design and Methods

The evolution of the design and operational procedures was governed by mutual commitment to meet three requirements:

(1) all concepts should be defined in such a way that they could be identified by empirical indicators using accessible data in each of the countries;

(2) measurement of the concepts should be cross-nationally equivalent

(though not necessarily using identical indicators, as will be explained below);

(3) analytical procedures should take account of the multiplicity of possible determinants in a complex interactional situation such as that confronted in this research (even though experimental manipulation of variables over time was not possible).

As finally matured, the design called for examination of the interrelationships of two main sets of variables—leaders' values and community "activeness", which was conceived as a major expression of community integration.

Values were defined operationally as the norms or principles which people apply in decision-making, that is, the criteria they use in choosing which of alternative courses of action to follow (or whether to make no decision at all).

Values, as we have explored them, include broadly-based concepts of legitimacy prevalent throughout a society; role-expectations of the general public or influence groups perceived by a decision-maker to be specifically applicable to his conduct; or personal convictions of what is right or wrong (which may conflict with the social norms to which the individual is exposed).

It is quickly apparent that political decision-making involves a process not only of applying particular values to the issue at hand, but of ordering priorities among inconsistent or conflicting values. So the study probed for the composition of leaders' value-*profiles,* in which they linked one value to another in a well-defined "syndrome" of inter-related commitments and priorities.

The principal concept of *integration* applied in this study was, as indicated, a performance concept. It assumes that the output of a community—what it does—is a powerful indicator of how well integrated it is.

Investigation revealed at least two dimensions of such activeness—decisions of the local government to allocate or mobilize resources for various types of community needs, and voluntary popular participation in organizations or activities directed towards the accomplishment of social goals (including political as well as cultural and functional activities).

Two other forms of integration were included as supplementary variables: (1) the congruence of values among local leaders, or the extent to which they shared the same or compatible values, and (2) integration of the local community with the nation, in the sense of responsiveness to national goals and values and specifically to policies and programmes initiated by the national leadership.

Linking leaders' values to community activeness is the process variable of *political decision-making* within the going system of government and structure of influence in the community. Patterns of inter-personal relations among leaders in live decisional situations proved difficult to investigate.

Consequently attention was focussed first on the formal characteristics of the system and especially on the degree of autonomy to make decisions possessed by the local leaders; second on the leaders' perceptions of influence and support groups affecting their political role; and third on the interplay of opposing interests with and outside the community as they wrestled to determine the outcome of critical issues.

Control variables, as previously mentioned, included the resource base of the community (economic level), certain ecological and demographic features, and additional personal characteristics of the leaders as age, education, political career and mobility.

The design can be summarized as follows:

Table 1
Variables

Explanatory Variables

1. Principal independent variable: leaders' values
2. Control variables—community characteristics:
   - (a) economic base
   - (b) ecological/social features
3. Control variables—leaders' characteristics:
   - (a) biographical
   - (b) perceptions of community
   - (c) perceptions of role

Link Variable:

Process of political decision-making:

- a. Autonomy—formal
- b. Autonomy—as perceived by leaders
- c. Support reference groups—perceived by leaders
- d. Influence/interest group conflict structure in the community
- e. Inter-personal influence in the local governing bodies

Dependent Variables

1. Community activeness (Integration "A")
   Dimension I—resource mobilization (by the local government)
   Dimension II—popular involvement
2. Congruence of local leaders' values (Integration "B")
3. Local responsiveness to nation (Integration "C")

Bases for Comparisons

Fundamental to the whole project, of course, has been the comparison of these relationships across countries, on the assumption that "country-ness" might make a crucial difference in determining the dynamics of community integration on the one hand, or the values of leaders on the other.

The selection of India, Poland, Yugoslavia and the United States as the participating countries was guided in part by the desire to provide for important differences in socio-economic conditions, cultural background and political ideology and system.

At the same time in all four countries there was a common preoccupation with the problem of relating political system to economic development and social mobilization, as witnessed by variety and experimentation in the patterns of local-national relationships—panchayati raj in India, people's councils in Poland, the radical decentralization of powers in Yugoslavia to communes and workers' councils, and the shifting kaleidoscope of local-state-federal relations in the United States.

The ultimate stage of analysis envisages a direct comparison between the amount of *intra*-national variation and *inter*-national differences in the major variables, leading to conclusions as to the overall effect of distinctively national characteristics.

In India and Yugoslavia it will be possible to examine regional differences as well, at least with regard to leadership characteristics, the sample of respondents having been chosen from three states and republics respectively. (It should be made clear that for India, findings cannot be generalized beyond the three states of Gujarat, Maharashtra and Uttar Pradesh in which most of the field work was concentrated. The selection of units in the other countries may have been sufficiently representative to warrant conclusions about the nation as a whole.)

It should be emphasized that in developing the project, precisely parallel lines of inquiry were pursued in each country, so as to maximize the comparability of the results. This did not mean that identical bits of information were gathered to serve as indicators of the variables. Considering the vast differences among the four countries, it would have been neither possible nor appropriate to do so.

Instead, a strategy of multiple observation was undertaken to establish the conceptual equivalence of the variables and the reliability of their indicators. Each variable was identified and measured by a whole set of items which were demonstrated statistically (usually by factor analysis) to be homogeneous.

In the case of values, an innovative method was devised to increase the cross-national reliability of scales by combining with identical items asked in all countries, a set of nation-specific items demonstrated to be homogeneous.

Furthermore, the study deliberately used a variety of techniques of inquiry, so as to "triangulate" the variables, checking results derived by one method against those produced by another. The importance of such built-in controls, to verify accuracy both of data and analysis, cannot be overemphasized.

The immense potentiality for error in this kind of broad-gauged empirical research, which requires the manipulation of large quantities of data, was so repeatedly demonstrated that the principal investigators now look with suspicion on the results of any studies which have not incorporated effective means of control.

Lines of Inquiry

Four main types of research were undertaken:

(1) An intensive interview survey of 3929 political leaders, virtually all the major political position-holders in a sample of local governmental units in each country (blocks in India, powiats in Poland, communes in Yugoslavia, municipalities in the U.S.)

(2) Compilation of a massive volume of aggregative data to secure measures of the level and rate of local economic development and the degree of social mobilization in the community.

(3) Case studies of political decision-making, reconstructing the life-history and social context of controversial issues in a cross section of communities.

(4) Systematic content analysis of the values expressed by leaders in speeches, other public communications, and in the survey interviews.

Value Scales

One of the important results of the ISVIP is a set of nine multi-item scales which reliably measure the strength of leaders' commitments to values relevant to political conduct and public policy in very diverse countries.

The scaled values, with their predetermined definitions, and some of the questions which were found to be reliable indicators of these values in all countries are as follows:

1. *Concern for economic development*, combining a general interest in material progress and well-being with a readiness to place future economic growth ahead of immediate consumption.

The economic development of the nation should take precedence over immediate consumer gratification.
A high standard of living should be the most important (ultimate) goal of a society.
The long term economic development of the nation should be considered as its most important goal.
Only economic development will ultimately provide the things required for the welfare and happiness of the people.

2. *Conflict avoidance*, emphasizing particularly the extent to which a desire for consensus, and the avoidance of conflict limit the willingness of leaders to proceed with programmes in the community.

If there is disagreement about a programme, a leader should be willing to give it up.
Public decisions should be made with unanimous consent.
Preserving harmony in the community should be considered more important than the achievement of community programmes.
A good leader should refrain from making proposals that divide the people even if these are important for the community.

3. *Participation:* concern for broad citizen involvement in public policy formation and decision-making (most of these questions are worded negatively so as to gauge the strength of various reservations leaders might have about the common man's role in politics).

The complexity of modern day issues requires that only the more simple questions should be considered publicly. Most decisions should be left to the judgement of experts. Only those who are fully informed on the issues should vote. Participation of the people is not necessary if decision making is left in the hands of a few trusted and competent leaders.
To have decisions made by people who are experts on the matter under consideration is important to achieve.
Participation by everyone in decision making regardless of their knowledge of the issues involved is important to achieve.

4. *Selflessness:* Willingness to sacrifice for others.

A leader should not be concerned about his own status, only about doing a good job.

Sacrificing oneself for others is the highest value a man can achieve.
One should work to the best of his ability regardless of whether his services are adequately rewarded.
Sacrificing oneself for the benefit of others is important to achieve.
Subordination of one's own interest in the interest of a higher cause is important to achieve.

5. *National Commitment:* sense of the primacy of national interests and goals (a number of questions are deliberately worded to bring out the strength of countervailing concern for *local* interests).

National goals should not be obtained at great costs to local communities.
Although national affairs are important, people here should first worry about their own community problems.
Community progress is not possible if national goals always have priority.
We should not worry so much about national problems when we have so many in our own community.
Local leaders should always be prepared to adjust their programmes to national goals and policies even if this is disadvantageous for the community.
It is necessary to forego development of one's own community to help the development of the rest of the country.

6. *Action Propensity:* disposition to act, despite risks, uncertainties or lack of knowledge about consequences.

I prefer to stop and think before I act even on trifling matters.
I usually check more than twice to be sure that I am not overstepping my tasks.
One should be concerned with what he has rather than with what he could get. The secret of happiness is not expecting too much out of life and being content with what comes your way.
Action should be delayed until it is certain that it will bring the desired results.

7. *Honesty:* truthfulness and the value of public disclosure by public officials.

Honesty and truthfulness must never be compromised at any cost.
Leaders should present the truth no matter what the consequences are.
If a person is requested by his superiors to present a false impression of certain matters, he should be willing to comply. If a leader knows that the truth will harm someone, he should conceal certain facts.
Local officials should cover up situations which may embarrass their superiors.
In order to achieve community goals, it is permissible for leaders to present facts in a one-sided way.
It is not necessary for a leader to be strictly honest in public dealings if he knows this will interfere with getting his work done.
If a leader in local government is highly skilled, one should overlook minor instances of dishonesty.

8. *Change Orientation:* disposition to accept and support "new things," especially in the solution of community problems.

If society is to progress, newer solu-

tions to problems are essential.

The people in this community must continually look for new solutions to problems rather than be satisfied with things as they are.

Even if the newer ways conflict with the way things were done in the past, they are absolutely necessary and desirable. Changes are desirable even if they do not seem to contribute as much as one might expect.

9. *Economic Equality:* concern for reducing differences between rich and poor and improving the position of the underprivileged.

There should be an upper limit on income so that no one earns very much more than others.

The government has the responsibility to see that nobody lives well when others are poor.

In every situation poor people should be given more opportunities than rich people.

Avoiding spending on luxuries is necessary to minimize distances between social groups.

Discrepancies in salaries should be continually reduced.

Cross-National Comparisons

The following findings emerged from preliminary analysis of mean scores on nine value scales for the total group of leaders interviewed in all four countries. (See Table 2 at end of article).

- There is substantial similarity across countries in the importance attached to honesty and selflessness as standards of public conduct.
- These local leaders, taken as composite national groups, are square in the middle when it comes to committing themselves as between national or local interests when the two are in conflict.
- They are on the same side of the fence in being favourably disposed towards change, but American leaders as a whole are significantly less so than the others.
- On the other hand, these leaders are *not* prone to act. That is, they want to calculate the risk before jumping. Indian leaders are particularly cautious (while being most eager for change). The Americans while somewhat less eager for change are more disposed to act.
- A marked difference appears in concern for public participation in political decision-making. Indian leadership is strongly opposed. In contrast, Yugoslav leadership tends to approve participation.
- As might have been expected, American leaders are strongly opposed to economic egalitarianism, while Indian leaders are as strongly committed in favour. Local leadership in the Communist countries is not overly enthusiastic about reducing economic differences, reflecting official preoccupation with the problem of production incentives and commitment to a policy of rewarding output.
- Finally, the national groups diverge on the issue of conflict. The Indians are clearly concerned to avoid conflict; Yugoslavs are not committed to conflict avoidance at any price; Poles and Americans tend not to view local conflict as a serious issue in their

political roles.

It should be emphasized that these conclusions are based on *mean* scores for each country, and do not constitute a profile characteristic of individual leaders. Indeed variances are so large within nations that a full-scale analysis is being undertaken of the nature and sources of individual differences.

On the other hand, variation is not great *among communities* in any country. While individual leaders differ markedly in the values they profess, they appear to cancel out each other at the community level, so that as a group leaders espouse much the same collective commitments, community to community, within each country.

What one gets is a picture of differences within community leadership but differences so evenly balanced throughout the local officialdom of these countries, that they present a deceptive appearance of universal homogeneity when compared as entities.

In fact, there is virtually no statistically significant difference between communities or between countries in the degree of leaders' consensus or dissensus on values, as measured by a composite index of the mean standard deviation on all nine values. This remarkable finding indicates that community integration in the sense of overall sharing of values by leaders—i.e. Integration "B" in the research design—is simply not a variable which has to be explained in these countries.

Rich communities are as integrated in this sense as poor. Community leaders are as united or disunited under one political system, as another. The amount of their overall agreement or disagreement on political values is the same whatever the type of community power structure or whatever its status system.

Patterns of Activeness

Such is not the case, however, with integration, when conceived as the outputs or social mobilization of a community. Using measures of activeness as described before (specific to each country), it is apparent that communities differ greatly from one another in every one of the four countries involved in the study.

While analysis has not been fully completed (final results will be reported in the international volume scheduled for publication this year) preliminary findings indicate that communities differ not only in the degree of activeness but in the pattern or *kind* of activity they engage in. This would obviously be the case between countries where conditions of life are so different.

But within the same country communities may differ in the basic way they function, as well as in the degree of their vitality. In the Indian sample, for instance, there was a clear distinction between communities which were receptive to new techniques and those which were committed to conventional ways of life. Communities might be highly active in *either* pattern but *not in both.*

The implication of this finding is that the quality of community dynamism may *not* be uni-dimensional. We must be on guard against the temptation to categorize community performance in terms of one measure of activeness only.

Although it is quite possible that a single dimension may be appropriate in some countries, this must be demonstrated empirically. In the case of India and probably Yugoslavia, the evidence from this study is that there is at least a dual pattern of activeness.

Leadership in the Dynamic Community

The central issue of the entire ISVIP study, it will be recalled, was to determine how much of the variance in community activeness (i.e. integration "A") can be explained by leader characteristics, particularly leaders' values.

To reach this conclusion (with proper regard for alternative explanations), approximately 180 variables were intercorrelated with the various measures of activeness which were produced for each country. A set of the best correlated variables was selected and several different types of multivariate analysis then performed.

Interpretation of the results is still in process, but it is already clear that *the qualities and conditions of developmental leadership are not universal.* Each of the four countries differs markedly from the others in the type of leadership associated with effective social mobilization and public activity in the local community.

In India: there is a dual pattern of dynamism. Two kinds of community leadership emerge, one the opposite of the other. Each tends to be associated with a different pattern of community activeness.

"Innovators"—those who lead in communities which are most active in adopting scientific improvements and programmes of social development (often dubbed "modernization") look as follows:

(1) they place priority on national goals and development; worry less about immediate local needs and problems;

(2) they are less inclined to hold up action for the sake of harmony and consensus in the community;

(3) the search for new solutions to problems appears to them more urgent; leaving "things as they are," less tolerable;

(4) they are politically conscious, in at least two senses: they see political conflicts in the community as a concrete obstacle to effective leadership and an impediment to the development of the community, and at the same time, they are more personally committed to advance political party interests;

(5) They are governmentally oriented, in at least two senses: they take a dim view of leaving community problems up to "the people," rather than turning to government for action, and they are more keenly aware of the *lack of power* for local government to function effectively in such areas as housing and health.

"Harmonizers"—leaders of communities which are active in the conventional ways of a manual agricultural society have the following attributes:

(1) they are greatly concerned to avoid conflict, secure consensus and maintain unity in their communities. There is wide homogeneity on this value —all leaders tend to be harmonizers in this kind of community.

(2) these same leaders are unusually *conflict conscious,* asserting more than others, that conflicts beset their com-

munities and interfere with their development;

(3) they are also cleavage-conscious, noting many differences which divide people in their communities;

(4) they are far less convinced of the desirability, or necessity of changing the established ways of coping with community problems;

(5) they attach less importance to expertise in making decisions on public matters;

(6) they are less insistent on leaders adhering strictly to principles, such as truthfulness in public conduct, or placing public interest above self-interest;

(7) they tend to blame and to shun government: they see "bureaucracy," maladministration, corruption (outside, or up above) as a major obstacle to their leadership, and they favour leaving problems up to the people to resolve, rather than calling upon any level of government, even local, to take a hand;

(8) they are unusually attached to local bases of support—official and non-official (including "poor people" as well as the "respected and influential");

(9) conversely, they are allergic to political party and political life. They profess not to seek support from higher party leaders; they state minimal concern for advancing party interests; far fewer than in other communities claim membership in the Congress Party; they don't recognize or admit partisan conflict to be an obstacle to their leadership, and an unusually small number indicate that they are either active or influential in political organizations.

In Poland: local development appears to be the direct consequence of centralized state initiative. It is virtually impossible to attribute differences in community activeness to any differences of values among the local leaders.

One finds the same degree of heterogeneity and the same "mix" of values in the leadership of the more active and the less active powiats. The element of heterogeneity must be emphasized. It is not that the leaders in these communities all share the same values. But their differences balance out so that on the average and taken as a whole the values of leaders in one community look much like those in another; and such differences as there are among communities do not match up with differences in the amount of activeness.

On the other hand, the leaders of active communities in Poland are distinguished by certain features of their political careers, attachments and perceptions. They are relatively recent arrivals in their localities; they look for support primarily to the local political establishment and especially the party organization; and they perceive little impediment from local political divisiveness to their own effectiveness or to the development of their communities.

This points to a particular circumstance of the Polish situation—the concentration by central government decision of both material and political resources in the western section of the country, the formerly German area which was repopulated after World War II.

Starting from scratch, with a completely imported population of Polish settlers, these "new territories" became the beneficiary of an immense developmental effort on all fronts, economic, social and political. The association of community mobilization with politically purposive leadership is thus no coincidence and testifies to the potential results of all-out centrally mandated and directed development programming.

In the United States: the values of leaders and the social vigour of their cities both follow a line of community affluence. There is a definite association between certain value commitments of leaders and community activeness—but only in *some* communities, the rich ones. Here the leaders tend to favour political participation, are unconcerned about economic development, and do not worry about conflict over local issues. They evidently reflect their constituency in communities which have few basic economic needs, but have a civic-minded, wealthy, educated citizenry, interested in being provided with good schools, services and the other amenities of affluent suburban life.

On the other hand, the leaders of poorer cities (which are also the less active ones) are development-minded in the sense that they are committed to the value of securing a higher standard of living. But they are paralyzed by a concern to avoid conflict, and are nervous about any general popular participation in the political process.

Unlike India, it is the economic status of the community that is the critical developmental influence, not the values of the leaders. If one holds constant for economic level, the relationship of leaders' values to activeness evaporates. Such values are thus only a reflection of the tax-base of the city.

In Yugoslavia: a line of affluence likewise dominates the dynamics of community development, despite the immense differences of system and national income between the U.S. and Yugoslavia. If one matches communes of equivalent economic level, the values of leaders cease to distinguish communes which are more active from those which are less.

But if one looks at the rich and the poor separately (speaking in terms relevant to a country which is of course far from being rich anywhere) each has a distinctive pattern of activeness with a corresponding type of leadership.

The more affluent (and more urban) are more organizationally active and commit more public funds to social development. The leaders tend to be *opposed* to economic equality (with an eye on stoking the development process with material incentives, and rewards for the maximum contributors); and they are relatively unconcerned about conflicts in the community.

The poor, rural communes fare badly on the mobilization of public resources and institutional organization, but tend to outpoint the rich in terms of various types of voluntary popular initiative. Their leadership holds value commitments just the opposite of those mentioned. They are eager to narrow the gap between rich and poor, and are concerned to avoid conflict and preserve harmony in their communities.

Thus the good fortune of being well-off shapes the pattern of a community's social as well as economic development and correspondingly the ideological inclinations of its leadership. But communes unblessed by such fortune also have a potential for activeness, though along different lines dictated by the poverty of their resources.

To generate this kind of effort, encouraging people to pull themselves up by their own bootstraps, evidently calls for a quite different orientation of leadership, one which is committed to social unity, sharing and solidarity rather than to competition in a struggle for the survival of the fittest, i.e. those who are able to produce and sell their handiwork more efficiently.

In summary, the four countries involved in this study differ in four respects in the relationship between leadership and community activeness:

(1) whether activeness is primarily a consequence of wealth or of leadership.

In other words, whether the leaders of active communities are genuine developmental trigger-men or merely yes-men of affluence and privilege (witness the distinction between India on the one hand and U.S. and Yugoslavia on the other);

(2) whether the values of leaders have any association at all with activeness (contrast Poland where they do not, with the other countries where they do);

(3) whether there is more than one distinctive type of developmental leadership, one for the rich, another for the poor; or one for the "modern" and innovative community, the other for the one which mobilizes itself in conventional ways;

(4) finally, where a distinctive association of values with activeness appears, which specific values characterize the leaders of the active communities.

While the dominant conclusion is unmistakably one of cross-national differences, account must be taken of one positive and several negative findings which apply uniformly to the four countries.

First, the concern to avoid conflict (or rejection of such concern) emerges as a common value attribute significantly related to community activeness. In India, conflict *tolerance* is a characteristic of leadership of what we have called innovative blocks, conflict *avoidance* of the leadership of active conventional blocks.

In U.S. and Yugoslavia, the leaders of the affluent, active communes tend to tolerate conflict. In Poland, there is a reverse relationship (though the correlation is relatively weak), i.e. the leaders of the active powiats tend to want to avoid conflict.

The second significant cross-national uniformity is the irrelevance of moral values to activeness. In no country is there any indication that differences in the commitments professed to truthfulness, or to public over self-interest, or any other moral traits of leadership (as indicated by the leaders' descriptions of what they admired in leaders) make any difference in the kind of community performance that occurs.

While this may be partially the result of a wide consensus among leaders on these values (regardless of the communities they live in) there was sufficient diversity of response, especially in the relative intensity of the commitments, to have permitted an association with activeness to emerge if moral predispositions had in fact been substantially influential.

The evidence seems convincing that

developmental effectiveness is a function neither of integrity nor opportunism, of public-spiritedness or self-serving, of equity or favouritism, in at least the lower levels of political leadership.

Finally, in none of the countries was there an association between the "action propensity" of the leaders and the activeness of their communities. The action propensity scale is the one which most closely approximates measures of traditionalism, readiness to take risks, and need-for-achievement as used in other cross-national surveys.

While our data do not permit a direct check on the correspondence between our scale and these others (though several items from these other scales were incorporated unchanged in the Action Propensity scale), we believe that this negative finding for all countries must be given considerable weight in assessing whether to continue to hold with the presumption that the distinction between traditionalist and modern dispositions, or between the achievement and non-achievement oriented, have something to do with the developmental or modernization process at the local level.

These may indeed be valid distinctions between individual persons. But insofar as political leadership is concerned, such distinctions appear to have *no carry-over* into social action.

Community activeness occurs where leaders are fatalist or in other ways "traditionalist"—and where they are not. Dynamic communities have leaders which by this scale would appear to be highly achievement oriented—but there is an equal chance they might be led by leaders who are not so.

One immediate implication of these findings is the potentially crucial importance of leaders' values in influencing the course of development, especially where the level of development is low as in India. Certain values appear to have an almost controlling effect on what happens locally and hence the success or failure of resource commitments, whether the source be foreign aid or indigenous investment, may be predicted by these "bellweather" values of the local leadership.

These are the catalyst of development initiatives from the outside. They also mark the spot where development initiative may bubble up from the bottom. In other words, what we find here is a *key to the human factor in the process of dynamic social growth and integration.*

On the other hand, the ISVIP findings throw suspicion on theories of development which presume to state *general* conditions governing the character and pace of social and economic mobilization. If one looks at the roots of development in the patterns of local activity, the evidence is strong that it can be profoundly affected by such diverse factors as the values of the local political leadership, the affluence or poverty of the community, and the degree to which relevant decision-making is centralized or autonomous.

All of these factors are inter-related in different ways in different countries—hence *no one formula for development policy appears applicable across the board.*

TABLE 2

Social decision values of local leaders means and Standard deviations on 9 value scales for total leadership samples in four countries

	India n=946	Poland n=889	U.S. n=905	Yugoslavia n=1178
Economic Development				
Mean	3.64	3.11	2.83	3.45
S.D.	.367	.437	.417	.354
Conflict Avoidance				
Mean	3.13	2.42	2.13	2.85
S.D.	.566	.468	.351	.392
Participation				
Mean	2.13	2.26	2.74	2.74
S.D.	.457	.390	.417	.435
Selflessness				
Mean	3.41	3.23	3.15	3.21
S.D.	.307	.422	.374	.386
National Commitment				
Mean	2.57	2.70	2.29	2.34
S.D.	.604	.382	.346	.383
Action Propensity				
Mean	1.60	2.15	2.48	2.06
S.D.	.469	.393	.407	.357
Honesty (Truthfulness)				
Mean	3.38	3.13	3.28	3.48
S.D.	.466	.351	.374	.322
Change Orientation				
Mean	3.47	3.33	2.83	3.27
S.D.	.420	.386	.388	.375
Economic Equality				
Mean	3.50	2.74	1.72	3.03
S.D.	.429	.463	.428	.496

Note: Mean scores are adjusted so that maximum commitment to a value equals 4.00 and maximum rejection of a value equals 1.00.

THE WRITER AND THE CITY

ALFRED KAZIN

From Walt Whitman to Theodore Dreiser to Ralph Ellison, says Mr. Kazin, the big city has played a central but complex role in the American literary imagination. His article is reprinted from the December 1968 issue of "Harper's Magazine" by permission of the author.

A leading literary critic, Alfred Kazin teaches at the Stony Brook campus of the State University of New York. His books include "On Native Grounds," a history of U.S. prose writing in the 20th century; "Contemporaries," a collection of critical essays; and two volumes of autobiography, "A Walker in the City" and "Starting Out in the Thirties."

UNTIL RECENTLY, the writers most sensitive to the American city were strangers to it, found it as strange as the immigrants did in the late 19th and early 20th century.

The novelist William Dean Howells describes the immigrant quarter in New York in 1895 ("... a squalor of a kind which, it seemed to me, it could not be possible to outrival anywhere in the life one commonly calls civilized") as if he belonged to another species. This was the way Herman Melville, himself a New Yorker, had described the bohemian quarters where impoverished writers like the hero of *Pierre* (1852) lived in the middle of the 19th century.

So intense was Howells' discomfort on the East Side that he thought there was no social or economic hope for the tenement dwellers and their descendants —a typical piece of end-of-the-century American social prophecy.

The same remoteness, without Howells' kindliness, is found in Henry James' icy disapproval of the East Side in his account of a native's return, *The American Scene* (1907).

James was born and grew up in New York; he was, in memory, so attached to the city that as an expatriate he ordered the collected edition of his novels to be called "The New York Edition." James was most at home in great European

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cities, and wrote some of his most beautiful pages about London in *The Princess Casamassima* (1886), Venice in *The Golden Bowl* (1904) Paris in *The Ambassadors* (1903).

Yet though James often relished picturesque poverty in London, Paris, Rome, he found the poverty of the newest in New York simply disgusting. There was nothing romantic for him here.

Culture and Power

Why were the European quarters of New York not "interesting" to Henry James—who managed to find "interesting" everything his writer's eye looked at? It is because the immigrant quarters seemed to James a particular example of powerlessness, culturelessness, of the degraded and nondescript.

He described brilliantly in *The American Scene* the excitement represented by the New York skyline. He detected with all his marvellous antennae the economic and social thrust of the city. He regretted that he was too old to be the Balzac of this new America of finance capital. Nevertheless he felt distaste for the powerlessness of the immigrants.

James had fled America because, in his terms, it was not rich enough in social institutions to set in motion a novelist with his ambition. In 1907, according to *The American Scene,* there was still no American city rich enough in human possibility, rich enough as a focus and centre of power, to enlist James' affection.

James could not take American cities as seriously as he took Rome, Paris, and especially London, for he still believed, in the old American way, that cities in America were not as significant as a few great men could be.

This is what all the older American writers believed—whether in the South, where there were no great cities anyway, or in the North,where transcendentalists and other pure spirits believed that cities even the size of Boston were artificial and morally damaging. It was Emerson's conviction "that one man is a counterpoise to a city—that a man is stronger than a city, that his solitude is more prevalent and beneficent than the concert of crowds."

This was the old American faith: power is in the individual, not in numbers; in spirit, not in material or cultural conglomeration. Culture, as Jefferson might have said, produces power; not power, culture.

The reason that there is no very great literature of the city in America before the end of the 19th century is that the best American minds did not identify significant achievement with *American* cities. Some of the most original American writing until the middle of the 20th century was to come from small towns in the Middle West and South. In the 19th century, certainly, the profoundest moralists and poets, and most of the good novelists, felt unrelated to great American cities.

Yet there was already one exception in the 19th century who was to be prophetic both of the importance of New York as a world capital of many races and peoples, and of the importance of poetry in shaping 20th-century epics of the big city.

Uniquely among gifted American writers of his time and place, Walt

Whitman found himself as man and artist by identifying with New York. None of the talented writers born and bred in New York—not Melville nor James nor Edith Wharton—was to make of New York such an instrument of personal liberation, such a living glowing fable of democratic possibility.

Old patrician New York still speaks in Melville's poem "The House-Top," written July 1863, in his rage against the largely immigrant mobs who were burning and looting in the streets below in their protest against the draft. Melville speaks of the riot as "the Atheist roar of riot," and complains bitterly that "The Town is taken by its rats—ship-rats/ And rats of the wharves."

But Whitman, his exact contemporary, did not yet despair of the identification of democracy with the masses that the modern city revealed to him. He found himself by finding the city to be the great human stage. Only through participation by the masses, he felt, would America fulfil the sacred purpose manifest in what even the conservative Tocqueville had felt to be the miracle of God's keeping the New World in reserve for man.

The masses, already visible in New York's population of over a million, were the evidence Whitman needed to ground his intuitive and radical gospel.

Whitman's Book of the City

Whitman, it can be said, found the model and form of his book, the one book he wrote all his life, in the city, its volume and mass, its mobility, excitement, danger.

Years ago I lived just across from the corner in Brooklyn Heights where Whitman himself first printed *Leaves of Grass.* Every Sunday, by way of Brooklyn Bridge, I walked over the East River that was for him the most significant waterway in the world. I realized then how much Whitman's long single lines, each a complete journey in itself, were formed on his ferry journeys back and across that estuary.

Equally, Whitman's idea of his book as a dense, numerous world, that would express "the pending action of this Time & Land we swim in, with all their large fluctuations of despair and hope," found in New York all the sanction he needed for trying to put everything into his book and also for seeking to make his book everything to all men.

His instinct in composition was to enter into such free association with himself that every thought, every image, might be a link to everything else.

This is a modern city aesthetic, born of the extraordinary number of stimuli and the constant irritable or exciting proximity of so many people and spectacles in the modern city. Joyce was to use this principle in *Ulysses,* Eliot in *The Waste Land,* Lorca in *The Poet in New York,* Hart Crane in *The Bridge,* John Dos Passos in *Manhattan Transfer.*

Whitman was a true prophet of the coming interrelations between the individual spirit and the social body. His image of the city is free from despair and hatred; he is not a determinist; for him the city is still a voluntary community created by vital people choosing to live in the same space. The individual is still in touch with nature, which is God; with his *own* nature, where God is revealed.

Whitman's New York is a city of joys and possibilities, of easy afternoons riding next to the drivers of the great omnibuses tearing down Broadway, of ecstatic walks on empty ocean beaches at Coney Island. It is a city rich in sexual excitement—a city for lovers.

Yet at the same time it is the city of young men from the crowd awakening to their possibilities as observers, thinkers, writers. Cities, as people still have to be told, are among the greatest inventions of man; are creative deeds and peculiarly centres of creativity.

Whitman's best poem of New York, *Crossing Brooklyn Ferry,* identifies the glowing, creative consciousness of the poet with the energy of the crowd at the rush hour and the primal energies of the universe vibrating along the river. It is this feeling for the constant movement of modern life, as it culminates in the unending stir of city life, that makes *Leaves of Grass* anticipate so many 20th-century social novels equally founded on the human richness of city life.

Yet when you compare New York in Whitman's work with his image of Washington, D.C. in his diaries and poems of the Civil War, you realize what New York misses in not being a capital. Only when Whitman went down to Washington, became a volunteer in the hospitals and identified himself with Lincoln, did he begin to think from a central point of view.

Then he was the poet in the capital, where all the responsibilities and privileges of power collect. During the Civil War, besieged Washington at last acquired the moral authority that 18th-century minds like John Quincy Adams had conceived for the nation's capital.

Whitman described exhausted soldiers lying in the streets; the wounded being put up in the Government Patent Office, next to the glass cases showing models of new inventions; Lincoln with his guard riding back to the White House from the Soldiers' Home outside the city where he slept on hot summer nights. He gives us a sense of Washington as the fundamental nucleus, the administrative heart of the Union cause.

Washington: The Centre of Power

But Washington really emerged in American literature only in the writings of Henry Adams. When Adams resigned his Harvard professorship in history in 1877, he moved to Washington because his historian's mind, preoccupied with administrative power, could not imagine a more suitable home base than a capital. His native Boston seemed to Adams out of date; New York, simply a place for making money.

Washington was the centre of politics, of the great American web of power being spun out to the Pacific coast, to Asia itself. Of course Henry Adams had personal reasons to identify himself with Washington; he was the grandson and great grandson of Presidents.

But deeper than family experience was Adam's feeling, as an historian, for the centre of power. To Adams the power that his forbears had directed had become the power invested in the *imagination* of history. He wanted not to run the government but to hobnob with statesmen, to look into forbidden archives, to understand better than anyone else how government worked and what gave it authority.

The chapters on Washington and on politicians in his autobiographical *The Education of Henry Adams*, the delightful malice with which he describes the Washington scene in his novel, *Democracy*, are rare and incisive in our literature.

The Romantic Vision

Adams wrote as an intellectual patrician whose sense of power lay in all the tradition he possessed. But imaginatively speaking, the city came into its own in our literature only when the masses discovered *their* first sense of power in the modern American city.

Not Adams' Washington but Chicago and New York became the focus for the new realistic writers who found in them the great subject for their novels. The fable behind all these famous 20th-century novels—Stephen Crane's *Maggie*, Theodore Dreiser's *Sister Carrie*, Frank Norris' *McTeague*, up to Dreiser's *An American Tragedy*, Dos Passos' *U.S.A.*, James T. Farrell's *Studs Lonigan*—is the price of ambition, the dream of success, the taste of defeat. These novels are always about winners and losers.

The sudden vision of success that the city gives provincials, rustics, outsiders who come to it from afar, is a vision that the city usually destroys; but not before it has summoned up, perhaps uniquely in modern industrial civilization, the romantic vision.

So whatever the cost they pay for the city's heartlessness, anonymity, coldness, the key figures in our urban novels —Carrie Meeber, Hurstwood, Jay Gatsby, Nick Carraway, Danny O'Neill, Miss Lonely-hearts, Augie March, Ralph Ellison's "Invisible Man"—have been given moral stature by the hopes aroused in them by the city. They find tragic stature by their defeat as living, struggling, hoping men.

A great city is a vision. It is an extraordinary collective creation, a masterwork in space and time. This, at the outset of the 19th-century epic of the city, is what Balzac saw in it: Paris stupendous, the greatest possible stage for men's ambitions, dreams, and visions.

And it is the extent to which American writers beginning in the 20th century caught the new sense of scale involved even in moving to a city that we can understand why so many of the best novels and poems were written by Midwesterners like Dreiser, Sherwood Anderson, Willa Cather, Vachel Lindsay, F. Scott Fitzgerald, Sinclair Lewis, Dos Passos, Ernest Hemingway.

It was only the dream of the big city, by those relatively new to it—all America was still new to it at the birth of the 20th century—that could create the solidly original imagery for so many unexpected experiences.

This is where American writing came of age, into the real world of men. W.H. Auden speaks in a poem of "Eros, builder of cities"; without the city, we should have had no literature of man-and-woman.

Dreiser's Sister Carrie starts out timidly for Chicago, but on the train she finds a protector who will lead her to still another. In Stephen Crane's *Maggie*

(1893) we see from the first the connection in the city between poverty and sexuality. And though Crane never put the flesh into his books as graphically as he did the colour of war, he suggested the particular atmosphere of expectancy and promiscuity, the peculiar loneliness inherent in city living.

Frank Norris, in his best novel, *McTeague* (1899), melodramatized the connection that San Francisco made to his mind between greed for money and sexuality. McTeague settling down in his dentist's chair with a schooner of "steam beer," blissfully sipping as he breathes in the moist warm air, is one of many touches by which Norris creates the physicality of the city--the marvellous compound of streets, clothes, smells, sounds, temptations, hurry, vertigo, strangeness.

A New Literature

Chicago fascinated the new writers because it had been conquered from the prairie all around them. It was America halfway between the wilderness and the stock exchange. Everything aggressive and human was closer to the writer's eye. This was why it caught the imaginations of Midwestern writers, has seemed to many of them—from Dreiser, Sherwood Anderson, Vachel Lindsay, Carl Sandburg up to Nelson Algren and Saul Bellow—*their* particular subject.

It is significant that much of Veblen's *The Theory of the Leisure Class* was documented from Chicago, that the new science of sociology found so many brilliant exponents at the University of Chicago. The radical, sardonic criticism of American wealth and American manners that was to preside over the coming literature found its material in the savageries of Chicago money-makers and the ostentation of their wives.

Chicago, indeed, became the favourite subject of the new American literature. It was, as a subject, easier to get hold of than New York, was present to the writer's eye all at once; the transformation from the old farm life to the magnificent views from Lake Shore Drive was the work of one short, violent gesture in history.

Chicago was thus the very embodiment of the great change that so many young men and women from small towns were making in their own lives. And Dreiser, in the very quality of his talent, embodied all the rawness and powerful feeling of those years.

His most casual images of Chicago in *Sister Carrie* catch the poignancy of so many American beginnings.

> *"The city had laid miles and miles of streets and sewers through regions where, perhaps, one solitary house stood out alone—a pioneer of the populous ways to be. There were regions open to the sweeping winds and rain, which were yet lighted throughout the night with long, blinking lines of gas-lamps, fluttering in the wind. Narrow board walks extended out, passing here a house, and there a store, at far intervals eventually ending on the open prairie."*

Still, those writers who made so much of Chicago were usually from the immigrant milieu or labouring class. The Midwesterners who were socially more privileged and thus had greater scope, like Scott Fitzgerald from St. Paul, Minnesota, naturally gravitated to New York.

New York was a dreamland to Fitzgerald. It represented his imagination of what is forever charming, touched by the glamour of money, romantically tender and gay. He felt about New York what a man might feel about an adored woman too exciting to be trusted.

But by the same token it was unreal, a mirage, and distinctly treacherous. At the end of *The Great Gatsby,* when the tragic tale of Gatsby's foolish hopes of recapturing Daisy has all been told, Fitzgerald suddenly, heartbreakingly, begins a great litany over the Middle West as the source of American innocence and hope.

But he never wrote very much about St. Paul, and certainly he never wrote about it as brilliantly as he did about New York and Long Island in *The Great Gatsby*. He had the feeling for the textures and lights of the great metropolitan glitter that the enraptured guest gets at the great New York feast.

No wonder that he speaks of "the enchanted metropolitan twilight," of "forms leaning together in taxis," of New York on summer afternoons as "overripe, as if all sorts of funny fruits were going to fall into your hands," of Negroes in cream coloured limousines being driven by white chauffeurs across Queensboro Bridge. For Fitzgerald all paradoxes then were spectacles. The name of the American dream was New York.

By the mid-twenties a great part of American writing was urban in feeling. Faulkner, Frost, Hemingway were perhaps still country boys at heart, but many of the interesting new writers were not, and the power centres of American life—the idols of our tribe—were such universally recognized symbols as Wall Street, Madison Avenue, Broadway, Michigan Boulevard, Hollywood, Detroit, Reno, Pittsburgh, Miami. The distinctly "provincial" perspective from which a few sensitive eyes had first described big-city life was becoming blurred.

The City as Nightmare

Looking back now on the mountains of realistic novels about New York, Chicago, Boston, Hollywood, one seems to see always the same forces forever beating the protagonist down into anonymity and sameness; always the same anger, the same sentimentality, the same loveless population on the bed that Tiresias observed in *The Waste Land.*

Eliot in London, crying "Unreal City" in his greatest poem, warning against "*Falling towers/Jerusalem Athens Alexandria/Vienna London/Unreal,*" *was* the last of the American patricians who have seen the modern mass city as a nightmare, a spiritual atrocity. In *The Waste Land* he described with faultless precision and stunning emotional impact the joylessness and terror of a wholly secular civilization.

This has become our truth. The language of the modern city novel has been worn down by the pressures of bigness, by the torpor of the lonely crowd, by the banality of violence.

When one remembers the masses of Jews, Italians, Negroes, Puerto Ricans who have found opportunity only in the big cities, it is interesting how few really distinguished works of imagination have come out of their lives.

Only a handful of writers of the last 30 years have really done justice to the mass experience in the big city. It is a very small library—this of Richard Wright's *Native Son,* Saul Bellow's *The Victim,* James Baldwin's *Notes of a Native Son,* Clifford Odet's *Awake and Sing,* Ralph Ellison's *Invisible Man,* Henry Roth's *Call It Sleep,* Bernard Malamud's *The Assistant,* Claude Brown's *Man-Child in the Promised Land.*

Of course names could be added to this list—but perhaps not very many. Most of these books are intensely personal and often plainly autobiographical.

The problem of the writer who comes from a submerged, often illiterate home is that he will usually write directly out of this experience. If he is talented, he sees life for himself and not simply through the eyes of his race, clan, or group, no matter how emotionally attached he is to them. But this effort to see for himself, to make an imaginative world out of grim reality, represents such a struggle that he cannot make the kind of career, the many books and the easy success, that are represented by many middle-class writers who articulate blandly the social information learned in their group.

Indeed, such brilliant and accomplished novelists as Ralph Ellison and Saul Bellow write so explicitly from their lives, against these difficulties, that one recalls Proust's saying that the writer must deliberately use an injured muscle.

A Negro's Journey

Ellison's *Invisible Man* in particular has proved to be an unusually comprehensive work of imagination, and particularly enduring, in a time when many a second-rater like LeRoi Jones disguises the poverty and brutality of his work by attacks on the white man in general.

Ellison does not feel that he is nothing but a victim of race hatred in America; in fact, he does not feel victimized at all. He writes as an artist, not as that mythical symbol, the common man.

The best books, whatever they may come from in experience, are made by writers who know themselves to be individualists and aristocrats of the creative life.

Invisible Man, which begins in a cellar in Harlem, is an allegory of our American journey from country innocence to city experience. And though it begins and ends on the desperate, comically extreme self-entrapment of the Negro protagonist, who has opted out of a system that he understandably feels has been created to ignore him—but which, if he protests, will crush and misuse him—his fantasies, his humour, above all the mental resources shown in his capacity for resistance, are all finally projected on Harlem to make the whole scene literally glow with the fires of his imagination.

In Bellow's *The Victim* the protagonist's uncertainties, his human ignorance, his extraordinary passivity and fumbling, come through to us as the heat, dampness, shiftiness of the awful New York summer.

> *"On some nights New York is as hot as Bangkok. The whole continent seems to have moved from its place and slid nearer the equator, the bitter gray Atlantic to have become green and tropical, and the people, thronging the streets, barbaric fellaheen among the stupendous monuments of their mystery, the lights of which, in dazzling profusion, climb upward endlessly into the heat of the sky."*

Bellow's novel, a fable of the Jew's anxiety and unconscious feelings of guilt in the moral climate created by Hitler, is written from a complexity and subtlety that no other literary artist has brought to this terrifying subject.

That is why the detail of New York streets, subways, the Staten Island ferry, and the New York summer, do indeed terrify us. They penetrate right to the soul, they make us realize what an intolerable weight of guilt we now all bear in the city, how easy it is to accuse us.

For there is so much humanity packed up in these streets, so much friction, so much hatred, that we are haunted by the screams against which we close our windows, our ears, our minds. Too much, we say, it is all too much: why should *we* have to confront all the injustice of our time just because we live in a big city? In a great modern city everything is excessive; human nature seems more irritable, more demanding more naturally unsatisfiable, more bent on violence.

The Need for Perspective

How is the writer to do justice to this extraordinary rage in human beings, to this endless clamour in the human heart —especially when the city arouses us with the same forces by which it defeats us?

How is the writer who is naturally part of this city scene to preserve his creative identity, his moral distance? How, in this atmosphere of excessive stimulation when everything feeds our anger and our cruelty—how is serious writing to avoid being submerged in its too powerful environment?

In a few generations, we have lived through the rise and decay of the city system. But our own saturation in the city makes it more and more difficult for the writer to stand outside this experience, to gain the perspective on it that writers once had. This is important, because only literature has in the past done justice to the human community, has shown us the city not as a problem to be discussed but as an experience to be shared.

THE FASCINATION OF SPACE

ARTHUR C. CLARKE

Man is drawn to space exploration not only because of scientific curiosity, says the author, but because he cannot resist its challenge to his imagination.

Arthur C. Clarke is unquestionably the world's best known authority on space. He originated the concept of a communications satellite and was co-author of the screenplay for the film "2001: A Space Odyssey." Along with technical papers, novels, and innumerable stories, he has written such popular scientific works as "The Promise of Space," "Interplanetary Flight," and "The Treasure of the Great Reef."

In the following article he pursues the so-called Clarke Law which states: "The only way to find the limits of the possible is to go beyond them to the impossible."

THE MOON is only the first milestone on the road to the planets and the stars. And space exploration comes none too soon in man's history. For civilization cannot exist without new frontiers; it needs them both physically and spiritually.

The physical need is obvious—new lands, new resources, new materials—although its fulfilment in space is uncertain and the prospect of mass habitation on the planets highly unlikely. (All the moons and planets of our solar system are strange, hostile places that may never harbour more than a few thousand carefully chosen human inhabitants.)

The spiritual need is less apparent, but in the long run it may be more important. Man has an impulse to explore, a yearning for adventure, a need for novelty—along with the more respectable forms of scientific curiosity. This frontier psychology may have profound effects on the evolution of societies. Arnold Toynbee suggests as much in his *Study of History:*

> *Affiliated civilizations...produce their most striking early manifestations in places outside the area occupied by the "parent" civilization. The superiority of the response evoked by new ground is most strikingly illustrated when the*

new ground has to be reached by a sea-passage... People occupying frontier positions, exposed to constant attack, achieve a more brilliant development than their neighbours in more sheltered positions.

Alter "sea" to "space" and the analogy is obvious; as for the "constant attack," nature will provide this more competently than any merely human adversaries. The noted geographer Ellsworth Huntington summed up the same idea in a memorable phrase, pointing out that the march of civilization has been "coldward and stormward." And space offers the challenge of climates and environments more hostile than any Earth can show.

A Test of Human Energy

As has happened so often in the past, the challenge may be too great. We may establish colonies on the planets, but they may be unable to maintain themselves at more than a marginal level of existence, with no energy left over to spark any cultural achievements.

History has one parallel as striking as it is ominous, for long ago the Polynesians achieved a technical *tour de force* which may well be compared with the conquest of space. By establishing regular maritime traffic across the greatest of oceans, writes Toynbee, they "... won their footing on the specks of dry land which are scattered through the watery wilderness of the Pacific almost as sparsely as the stars are scattered through space."

But the effort defeated them at last, and they relapsed into primitive life. We might never have known of their astonishing achievement had they not left, in the huge stone statues on Easter Island, a memorial that can hardly be overlooked.

There may be many Easter Islands of space in the eons to come—abandoned planets littered not with monoliths but with the equally enigmatic debris of another defeated technology.

Whatever the eventual outcome of our exploration of space, we can be reasonably certain of some immediate benefits—and I am deliberately ignoring such "practical" returns as the invaluable improvements in weather forecasting and communications. The creation of wealth is certainly not to be despised, but in the long run the only human activities really worthwhile are the search for knowledge and the creation of beauty.

Only a small part of mankind will ever be thrilled to discover the electron density around the Moon, the precise composition of Jupiter's atmosphere, or the strength of Mercury's magnetic field. Though the existence of whole nations may one day be determined by such facts, and others still more esoteric, these are matters that concern the mind, and not the heart.

The arts, with their wider and deeper appeal, have in the past responded strongly to an upsurge of exploration. Professor Walter Prescott Webb, the noted historian of America's Southwest, writes in *The Great Frontier:* "We find that in general each nation's Golden Age coincides more or less with that nation's supremacy in frontier activity... It seems that as the frontier boom got under way in any country, the literary genius of that nation was liberated..."

Thus in periods of movement and exploration, we have Homer, Shakespeare and Cervantes, or—to choose less Olympian examples nearer to our own age—Melville, Whitman and Mark Twain. It is possible that the triumphs and tragedies accompanying space exploration will inspire a rebirth of the epic and of the heroic spirit in literature.

Contact with a contemporary non-human civilization could be the most exciting thing that has ever happened to the human race. It is more likely, however, that if Mars, for instance, ever produced intelligent life, we have missed contact with it by geological ages. Since all the planets have existed in something like their present form for at least five billion years, the probability of cultures flourishing on two of them simultaneously must be extremely small.

A New Renaissance?

Yet the impact of discovering even an extinct civilization on another planet could be overwhelming. The European Renaissance was triggered by the rediscovery of the Graeco-Roman culture that flourished more than a thousand years earlier. "Contact with strange civilizations," the Chinese scholar Hu Shih has remarked, "brings new standards of value, with which the native culture must be re-examined and re-evaluated, and conscious reformation and regeneration are the natural outcome." Hu Shih was speaking of the Chinese literary renaissance, *circa* 1915. Perhaps these words may apply to an Earth-wide renaissance a century hence.

It is significant that, after Galileo's remarkable astronomical observations of the Moon, the idea of lunar voyages became a popular subject of literature, from Johannes Kepler's *Somnium* (published in 1634) to the contemporary outpourings of science fiction.

The most famous of these voyages was, of course, that described by Jules Verne in *From the Earth to the Moon,* written in 1865. Although much of Verne's novel was intended as satire, this work is important because it was the first to be based on sound scientific principles.

Verne knew that if a body could be projected away from the Earth at a sufficient speed (the "escape velocity") it would reach the Moon. So he simply built an enormous gun and fired his heroes from it in a specially equipped projectile, a crude forerunner of the Apollo capsule. One of its most interesting features was that, like modern spacecraft, it was fitted with rockets for steering once it reached space.

Verne never landed his heroes on the Moon, perhaps because he was unable to think of any way in which they could take off again. Instead, they performed a circumnavigation and then came back to Earth—landing in the Pacific Ocean, as the Apollo astronauts were to do a century later.

Another example of Verne's uncanny prescience was his locating the lunar spacegun at Tampa, Florida, barely a hundred miles from Cape Kennedy.

From the Earth to the Moon was a powerful work of the imagination but only a modest literary achievement. Not until men have had more direct and intimate experiences of the universe beyond the Earth, can we expect to have major works of art on that theme.

The Possibilities of Moon Exploration

If the full cultural impact of space exploration lies in the uncertain future, its scientific fruits are much closer at hand. The Moon, on whose surface men have already walked, might have been designed as the ideal site for an astronomical observatory.

Its almost total absence of atmosphere means that seeing conditions are always perfect, not only in visible light, but also in the vitally important ultraviolet, X-ray and gamma-ray regions of the spectrum, which are almost totally blocked by the Earth's atmosphere.

The low gravity and absence of wind forces will also greatly simplify the design and erection of large instruments; and the slow rotation means that objects can be kept under continuous observation for two weeks at a time, much longer than from any Earth-based observatories.

For the radio astronomer, the Moon has an overwhelming advantage. At the centre of the far side, he will be permanently shielded from all the electrical "noise" and interference of Earth's civilization by 2,000 miles of solid rock.

To the geologist, the Moon represents a bonanza of more value than all the gold mines ever found. What we learn about the evolution and geological history of the Moon may shed light on the origins of the Earth.

Until now we have had only one planet for study; we do not know in which ways our Earth is typical and in which it is unique. Almost all its surface features have been shaped and reshaped by wind and rain, until practically nothing has been left on its primordial crust.

The "eternal" mountains are jerry-built structures which were thrown up by nature "yesterday" and will be torn down "tomorrow." On the very rim of the Grand Canyon—already hundreds of millions of years back in time—may be found the fossil sponges and corals of recent seas. In the miles of rock below lie the records of far more ancient oceans, interleaved with the ruins of continents that have come and gone and come again in the four billion years since the crust of our planet congealed.

There are still great canyons on the Moon; what story do they tell? A very different one, it is certain. Despite the evidence of massive bombardment in the remote past, the Moon may furnish a much more complete and undisturbed geological record than the Earth can ever provide.

Not only the scientific, but also the practical—and even commercial—importance of this can hardly be overestimated. We do not know, for example, why metallic ores are distributed and concentrated as they are in the Earth's crust. The Moon may help us to answer this question, with economic consequences that could pay for any lunar exploration programme a hundred times over.

We have already been rewarded with some valuable surprises. Only a decade ago, astronomy described the Moon as a dead, unchanged world. Now we know that there has been a great deal of geological activity there.

An Ideal Laboratory

Even the first Orbiter photographs showed the tracks of rolling stones, startling like footprints, down (and sometimes up) the lunar slopes. There is evidence of immense lava flows, and even what look like dried-up river valleys. If this is the case, water may still be there, locked up in permafrost a few meters underground, where the temperature is constant and far below the freezing point.

The discovery of easily available water or ice would be of the greatest importance to lunar explorers. Electrolyzed, it would provide both oxygen for breathing purposes and fuel for returning spacecraft. Obviously, this last development would not be possible until largescale engineering operations could be carried out on the Moon. This is not likely for some decades, but eventually it could completely transform the economics of space flight.

For physicists, the Moon's surface provides a vacuum laboratory of almost unlimited extent. It would be the ideal place for many types of electronic and nuclear experiments. One can even imagine that the great particle accelerators of the future will be wrapped around the Moon, so that the vacuum will be provided automatically, and there will be no need for today's elaborate enclosures and pumps.

This sort of experimenting, which could revolutionize the many branches of physics concerned with vacuum phenomena, may be possible only in the early stages of lunar occupation. For sooner or later, as scientific expeditions, industrial projects, and even tourism spread across the face of the Moon, it will begin to acquire an "atmosphere" of debris of its own.

And if it turns out, as some have suggested, that the expectation of life is considerably increased in low gravitational fields, there will be a move to give the entire Moon a breathable atmosphere, probably by using biological systems to unlock the immense amounts of oxygen (probably about 50 per cent by weight) bound up in the crust. Then the astronomers and physicists will have to move elsewhere in search of ideal conditions, just as on the Earth's surface they have had to retreat from the lights of the city.

On to the Solar System

The next breakthrough in space technology, probably necessary for flights to other planets, may be the development of nuclear propulsion systems—presumably fission-powered but, hopefully, using fusion as well. And with these, the solar system will become an extension of the Earth—if we wish it to be.

Observation through the medium-sized telescopes outside the atmosphere —even 100 kilometres from the Earth— should have an overwhelming impact on solar system studies. Until the advent of radar and space probes, everything we knew about the planets had been painfully gathered over the period of a century and a half by astronomers with inadequate instruments, hastily sketching details of a tiny trembling disk glimpsed during moments of good sighting. Such moments—when the atmosphere is stable and the image undistorted—may add up to only a few hours in an entire lifetime of observing.

In these circumstances, it would be amazing if we have acquired any reliable knowledge about planetary conditions; it is safest to assume that we have not. Things of which astronomers were quite sure have recently turned out to be simply not true.

The most embarrassing example is the rotation of Mercury. Until a few years ago, astronomers were certain that Mercury, rotating completely once a year, always kept the same face towards the sun, so that one side was eternally dark, the other eternally baked. But recent radar observations indicate that Mercury turns on its axis every 59 days; it has sunrise and sunset, like our own planet.

Other recent surprises have been the unexpectedly high temperature beneath the clouds of Venus, the craters on Mars, the gigantic radio-wave emissions from Jupiter, the complex organic chemicals found in certain meteors, and the signs of volcanic activity on the surface of the Moon.

The old astronomical writers had a phrase that was gone out of fashion but that could well be revived: "the plurality of worlds." Consider the multitude of environments that exist here on Earth, from the summit of Everest to the ocean depths of the Marianas Trench—from high noon in the Death Valley desert to midnight at the South Pole. We may find equal variety on other planets, with all that this implies for the existence of life. As the British biologist J.B.S. Haldane once remarked: "The universe is not only stranger than we imagine, it is stranger than we *can* imagine."

The discovery that Jupiter is quite warm and has precisely the atmosphere in which life is believed to have arisen on Earth may be the prelude to the most significant findings of this century. Carl Sagan and Jack Leonard state this view forcefully in their book *Planets:* "Recent work on the origin of life and the environment of Jupiter suggests that it may be more favourable to life than any other planet, not excepting the Earth."

Nor can one rule out all possibility of life on Venus, despite its extremely dense, furnace-hot atmosphere. Near its poles and at great altitudes, it may be cold enough for liquid water to exist. Moreover, the Russian space probe Venera IV discovered evidence of oxygen in the Venusian atmosphere, and free oxygen is considered an almost infallible indicator of vegetable life.

On the other hand, it is also possible that we shall discover no trace of extraterrestrial life, past or present, on any of the planets. This would be a great disappointment; but even such a negative finding would give us a much sounder understanding of the conditions in which living creatures are likely to evolve; and this, in turn, would clarify our views on the distribution of life in the universe as a whole.

The Lure of the Unknown

Perhaps one day men will no longer

be interested in the unknown, no longer tantalized by mystery. This is possible, but when man loses his curiosity, one feels that he will have lost most of the other things that make him human.

The long literary tradition of the space-travel story shows how deeply this idea is rooted in man's nature; even if not a single good "scientific" reason existed for going to the planets, he would still want to go there, just the same.

In fact, the advent of space travel is likely to produce an expansion of scientific knowledge unparalleled in history. There are, of course, many people who think that we have learned more than enough about the universe in which we live. There are others (including perhaps most scientists) who adopt the noncommittal viewpoint that knowledge in itself is neither good nor bad and that these adjectives are only applicable to its uses.

Yet, knowledge surely is always desirable, and in that sense good; only insufficient knowledge or ignorance is bad. And worst of all is to be ignorant of one's ignorance.

We all know the narrow, limited type of mind which is interested in nothing beyond its town or village and bases its judgements on these parochial standards. We are slowly—perhaps too slowly—evolving from that mentality towards a world outlook.

Few things will do more to accelerate that evolution than the conquest of space. It is not easy to see how the more extreme forms of nationalism can long survive when men have seen the Earth as a pale crescent dwindling among the stars, until at last they look for it in vain.

More than a half century ago, the great Russian pioneer in space studies, Konstantin Tsiolkovsky, wrote these moving and prophetic words: "The Earth is the cradle of the mind—but you cannot live in the cradle forever." The Earth is indeed our cradle, which we are about to leave. And the solar system will be our kindergarten.

THE EDUCATION OF MALCOLM X

JACOB SLOAN

The posthumous "Autobiography of Malcolm X" is the revealing self-portrait of a leading figure in the Negro separatist movement called the Black Muslims, a movement not officially associated with the religion of Islam. Malcolm X's shift towards the end of his life from a philosophy of bitter hostility to a tentative hope for reconciliation with the white community, writes Jacob Sloan, is suggestive of the fluid psychology of American race relations.

Mr. Sloan is a critic, poet and translator who has written widely on literature and social issues. Former editor of "The American Reporter," Mr. Sloan will soon rejoin the U.S. Information Service in India, this time in the cultural section of the Calcutta office.

IT IS BY now a cliche to describe *The Autobiography of Malcolm X* as the "bible of the Black Power movement." And the word "bible" is well-chosen; this is a work whose strength lies as much in its private spiritual revelations as in its classic justification of the need for contemporary Negro social revolution—in the name of universalist religious principles.

Malcolm X (born Malcolm Little), was assassinated in 1965 by a Black Muslim fanatic after Malcolm X had broken with his former leader, Elijah Muhammad.* The violence of his death has been compared to that of Martin Luther King in 1968, as being symptomatic of the polarization of race relations in the United States.

But in many ways, the career and heritage of this former dope peddler, thief, pimp, convict turned brilliant orator and ideologue, is more instructive for an understanding of what is happening in mid-20th century Negro America than is that of the man who was always on the side of the angels, always beyond reproach, always the sophisticated man of the book and the word.

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*The Black Muslims ("The Nation of Islam") have been led since 1934 by Elijah Muhammad (born in Georgia as Elijah Poole at the turn of the century.) Since Elijah Muhammad claims to be a "new" prophet, the Black Muslim movement has not been recognized by traditional Islamic leaders. Malcolm X, after leaving the Black Muslims, called his new group the Organization for Afro-American Unity.

Dr. King died firm in the faith of the redemptive power of love which he had arrived at as a Protestant seminarian. Malcolm X died when he was just beginning to see the larger implications of his rebellion against that very Christianity. But, in his brief sweep across the American stage, Malcolm sounded every option, investigated every possibility—finally to adumbrate the same hope as King: reconciliation between the races.

The Autobiography of Malcolm X is essentially the story of the self-education of an American Negro. Its underlying tone is impassioned self-justification. The insecure pugnacity of the self-taught can be annoying; the intolerance of the impatient convert often sets teeth on edge. But Malcolm X's magnetic power rides over these minor distractions.

For his is the same kind of power that has repeatedly transformed the history of mankind, when the time was ripe and it could operate freely: its source is the naked human will. The idiosyncracy of personality, raised to the Nth degree in Malcolm X, made him a spokesman of his time whose shadow still hangs over America. He remains, and will continue for some time, a prototype of significant Negro leadership in America.

Malcolm X himself describes the scope of his intentions in the most ambitious terms: "The only persons who really changed history were those who changed men's thinking about themselves." This redefinition of self as a precondition for the restructuring of society is an audacious thrust.

Impulse Towards Modernization

The Harvard psychologist David C. McClelland, in his *The Achieving Society*, notes that a sense of election, of superiority, has characterized those groups in the Western world that have "taken off" on a rapid economic and social upward flight. Professor McClelland calls it "the impulse to modernization" that drives zealous, reformist sects to unprecedented achievement. This impulse is the Allah whom Malcolm X calls on to lead American Negroes to the Promised Land—not of faith, but of modernization.

Malcolm X combined in himself two roles: first, the impassioned agitator, the fiery proselytizer; second, the organizational genius, who, in the course of a few years transformed Elijah Muhammad's parochial, separatist Black Muslim movement into a vehicle on which American Negroes could ride into the modern world.

Malcolm X was a man constantly in touch with, fascinated by, his own inner life, which, he discovers, was in tune with the inner wisdom of the past. A voracious reader, he was the classic autodidact, naive enthusiast of the intellect, scribbling notes to his memory, abstractions of his dreaming self. One such jotting reads: "Learn wisdom from the pupil of the eye that looks upon all things, and yet to self is blind. Persian poet."

Like the Persian poet, Malcolm X was drawn to the indispensable wisdom of human limitation, of ignorance, of failure. Elsewhere, he declares an impatience with the static, and with all those who refuse to take time by the forelock. It is an impatience with the inaction of traditional society, stated very concretely:

> *"I have less patience with someone who doesn't wear a watch than with anyone else, for this type is not time-conscious. In all our deeds, the proper value and respect for time determines success or failure."*

One is reminded in a flash of a photograph of Gandhi, at the end of his life, almost naked except for a watch. The parallel between the two modern revolutionaries working to arouse passive, past-oriented societies is astonishing, and revealing.

In Gandhi, who longed for a return to the rural, golden age of village innocence, for whom homemade cloth *khadi* was associated with traditional religious, even caste values (though purified), the modernist preoccupation with time and change seems paradoxical.

But in Malcolm X the heightened time sense is no contradiction at all. It reinforces the general feeling one has of him as a 20th century American. This is no paradox, but a fascinating complication, a deliberate change of roles, a leap over the fence of race to the other side, to power.

A Man on the Move

This time-consciousness, so integral a part of the Christian, specifically Protestant ethic, has reached its contemporary culmination in the very same bourgeois American white society against which Malcolm X was leading a rebellion. But he was on the move, he was part of that society, and he did not hesitate to jump the white man's fence.

Men on the move count the minutes. To them, whether white or black, time is power, as well as money. "I wasted time and now doth time waste me" is the ineffectual cry of a king deprived of his sovereignty.

Asian peasants and Negro slum-gangs—for them the hours and days and weeks and months and years drift by unused unless by some sudden twist and quirk of character as much as of event, there is an unexpected turning of a corner often passed. Then they break out of the jail of time-serving into the spiral of revolutionary progress.

Malcolm X's contemporary, Claude Brown, has told of a strikingly similar emergence, after long imprisonment in a cycle of delinquency and partial, abortive, half-hearted attempts at reform, in his autobiographical *Manchild in the Promised Land.*

Malcolm's case was the same. His moment of truth came to him in a federal penitentiary, and it took the old-fashioned form of garish, conversionary semi-religious tracts—Black Muslim propaganda sent by a brother he had always belittled.

The place and time were crucial. Here, where the passage of time is the chief preoccupation of the inmates, he perceived with the utmost clarity that his life was slipping away. He was a black man who had not "made it" in a white man's world because he had acted out the white man's stereotype of the black man as living carelessly, loosely, outside of the white man's world of time and society.

He was outraged at this discovery. The hustler out-hustled, the manipulator manipulated! But now he had a grand ideology. It did not take him long, once he could identify the enemy exactly, to take over the enemy's own weapons, tactics, strategy—even goals. Malcolm Little becomes Malcolm X, rejecting the name his slave forbears borrowed from their white master.

Borrowed Tactics

Malcolm X was a city man, bred to the sophistication of the latest propaganda methods. He adapted traditional religious exhortation to the needs of the new public relations science. First, he declared his aim—and it is a classic injunction for all modern-day practitioners of the elegant art of moulding public opinion: "Keep your eye on the target."

He defined the target sharply, in a vivid, apt metaphor—and with it, defined the means: "Whether you use bullets or ballots, you've got to aim well; don't strike at the puppet, strike at the puppeteer."

The white man, said Malcolm X, has cast dust in the black man's eyes in the guises of Christianity and the civil rights movement. So give the black man a new religion, and a world view. Islam is the perfect choice. It has never, he declared, been the religion of slaves. It has always been militant—for did Islam not fight Christianity to a standstill for centuries? And it is international—Malcolm X was later to see the universalism of Islam with his own eyes on his personal pilgrimage to Mecca, a journey which changed his feelings about colour and race.

A New Self-Image

But in the beginning it was a less universal internationalism that led to Malcolm's selection of Islam as the American Negro's new religion. The American Negro, Malcolm believed, needed a new self-image. He must see himself in larger terms than as an American alone. For here, at home, he knows he is weak, knows it all too well. Let him see that he has world allies:

> *"The American white man has so throughly brainwashed the black man to see himself as only a domestic civil rights' problem that it will probably take longer than I live before the Negro sees that the struggle of the black man is international."*

Yet it would be foolish not to take advantage of those very civil rights with which the white man has cast dust in the eyes of the black man. Malcolm X would use the white man's weapon against him. Civil rights are the soft spot in the underbelly of white society. They represent the black man's actual political strength. In a cold analysis, Malcolm X struck directly to the point:

> *"The cornerstone of this country's operations are economic and political strength and power. The black man doesn't have economic strength—and it will take time for him to build it. But right now the black man has the political strength and power to change his destiny overnight."*

And he had very definite ideas about

how the black man is to wield his civil rights. Malcolm X envisaged a time-honoured, homely, highly visible, public course of action. He urged American Negroes to play the role of an organized "pressure group." In a remarkably concrete fantasy, he hit on a characteristic American device for influencing legislation:

> *"Twenty-two million black people should tomorrow give a dollar apiece to build a skyscraper lobby building in Washington, D.C. Every morning every legislator should receive a communication about what the black man in America expects and wants and needs. The demanding voice of the black lobby should be in the ears of every legislator who votes on any issue."*

This is not to be sneered at as mere opportunism. He is not being diverted from his main aim. This is American practicality at its best. Why inveigh against the existing lobbies that are indifferent to the interests of the Negroes? Rather, lobby for yourself, on your own in the most visible way!

Opportunism with a Purpose

Malcolm X was willing to use any tactic that would work. He was an avowed opportunist, but he never forgot the purpose of his opportunism.

> *"They called me the 'angriest Negro in America.' I wouldn't deny that charge. I spoke exactly as I felt.* I believe *in anger. The Bible says there is a* time *for anger. They call me 'a teacher, a fomenter of violence.' I would say point blank, That is a lie. I'm not for wanton violence. I'm for justice...and I feel that when the law fails to protect Negroes from whites' attack, then those Negroes should use arms, if necessary, to defend themselves."*

When it suits his purpose, as it does here, Malcolm can appeal to the generally accepted right of an American minority to defend its rights, threatened or abridged. In that right he locates a sanction for violence if necessary. Malcolm grows ironic at the expense of Negro integrationists whose horizons are limited to verbal agitation within the system. They are not true revolutionaries.

> *"So how does anybody sound talking about the Negro in America waging some 'revolution'? Yes, he is condemning a system—but he's not trying to overturn the system, or to destroy it. The Negro's so-called 'revolt' is merely in asking to be accepted into the existing system! A* true *Negro revolt might entail, for instance, fighting for separate black states within this country—which several groups and individuals have advocated, long before Elijah Muhammad came along."*

An Apocalyptic Vision

Not integration into American society, not acceptance of America's mere toleration of the Negro, but Negro separatism became for Malcolm X the answer to what he saw as the Negro's continued "enslavement" in the American Egypt. For Malcolm X had seen an apocalyptic vision, and the vision remains with him almost to the end of his life, despite his disillusionment with the personal morals of the Black Muslim leader, Elijah Muhammad.

The vision is of the election of the Negro people, God's chosen slaves, and it goes back to the Biblical vision of slavery, the meek inheriting the earth,—to the apocalyptic visions of that very Christian Church he mocks.

It is in a way strongly fundamentalist. Like the God-fearing Essenes of Palestine in the second century B.C., Negroes should separate from the corruption of the larger society to form a community of the morally pure, "a land of our own, where we can reform ourselves, lift up our moral standards, and try to be godly."

How much of this was truly felt, how much spurious, put on to attract the credulous? It is wrong to take a completely cynical view, for this is a very complicated man indeed.

The autobiography is full of cogent psychological self-analysis. As a child, Malcolm X learned a lesson he would never forget, the value of verbal aggression:

> *"I learned early that crying could accomplish things... I remember well how my mother asked me why I couldn't be a nice boy like Wilfred; but I would think to myself that Wilfred, for being so nice and quiet, often stayed hungry. So early in life, I had learned that if you want something, you had better make some noise."*

The rest of his life he respected the persistent daring of childhood.

> *"Children have a lesson adults should learn, not to be ashamed of failing, but to get up and try again. Most of us adults are so afraid, so cautious, so 'safe,' and therefore so shrinking and rigid and afraid that it is why so many humans fail."*

Defences against Reality

Studying himself, he perceived both his personal strengths and failings. He was not, like so many men, easily manipulated by women, diverted from his true course into the shallows of domesticity. But he was aware of a perilous tendency to try to block out reality. Characteristically, he provides a social explanation, projecting his black man's defensiveness on the white man. But he does not spare himself:

> *"I had built up subconscious defences. The white man does this. He shuts out of his mind, and he builds up subconscious defences against anything he doesn't want to face up to. I've just become aware how closed my mind was now that I've opened it up again. That's one of the characteristics I don't like about myself. If I meet a problem I feel I can't solve, I shut it out. I make believe that it doesn't exist. But it exists."*

This proved to be a valuable insight. Fortified with this perception of the white man's weakness, of which his own was but a mirror-image, Malcolm could open the door of the ghetto in which he had shut himself.

Studying in prison the Black Muslim teachings of Elijah Muhammad, he goes through a drastic process of conversion. He understands now that only through admission of guilt could he be converted to the ways of truth. The new follower of Islam practises the Christian exercise of confession:

> *"I have since learned—helping me to understand what then began to happen within me—that the truth can be quickly received, or received at all, only by the sinner who knows and admits that he is guilty of having sinned much. Stated another way: Only guilt admitted accepts truth—the very enormity of my previous life's guilt prepared me to accept the truth."*

And finally, there arrives the authentic, mystical insight of harmony with the laws of the universe to which all who have the true religious experience rise:

> *"I was going through the hardest thing, for any human being to do: to accept that which is already within you, and around you."*

Indeed, this is a very complicated man, driven by furies of pride and despair. And despite his veiled threats, taken up by his fire-eating latter-day successors, to burn down the cities of white society, this is no suicidal hero.

That is the crucial gulf separating the present-day Rap Browns and Stokely Carmichaels from Malcolm X. For Malcolm kept the bridges of communication up, despite his pressure for a separatist Negro state.

Models of Responsibility

In fact, his work for an independent, substantial Negro society in America was clearly modelled on the white middle-class society. Thus, he explains the regenerative training that the Black Muslim's "temple" members received to become fitting members of a new new Negro independent society:

> *"Monday night, every temple's Fruit of Islam trains. People think this is just military drill, judo, karate, things like that—which* is *part of the Fruit of Islam training, but only one part. The FOI spends a lot more time in lectures and discussions on men learning to be men. They deal with the responsibilities of a husband and father; what to expect of women; the rights of women which are not to be abrogated by the husband; the importance of the father-male image in the strong household; current events; why honesty, and chastity, are vital in a person, a home, a community, a nation, and a civilization; why one should bathe at least once each twenty-four hours; business principles; and things of that nature."*

One is struck by this independent reflection of the findings of the latest generation of sociologists of Negro life: that delinquency and poor educational achievement are directly linked to widespread family breakdown and desertion, to the lack of a "father-image" in the home, to the failure of many Negro men to accept their family responsibilities, to the low esteem in which these men hold themselves in a hostile society—and that all these, as Malcolm X and the Black Muslims distinctly perceived, are links in a larger social chain. Hence, the Fruit of Islam training in what (paradoxically) are usually regarded as the middle-class white values: masculine responsibility, courtesy, thrift, chastity, honesty, even cleanliness.

To achieve this goal of mature and responsible black independence, the black man must set himself free—and only one who is inwardly free can achieve outer freedom. Malcolm X argued that the white man would not, of his own free will, give up his power over the black man. The spiritual appeals to conscience made by Martin Luther King, the association of black man with white man in a joint effort for civil rights—time and again Malcolm X derided these as delusionary, diversionary tactics. He returns repeatedly to the contrast between *civil* and *human* rights—the Negro's *rights* as a full-sized man, as opposed to his claims to an abstract concept called citizenship.

Doubt and Revelation

But cannot white and black work together?

There is a visible movement in Malcolm's thinking and feeling on this subject in his *Autobiography*. He was always, in every waking and sleeping moment, aware of the enormous gulf separating even the best-intentioned of white folk from the black man.

But this alienation of white from black was, he discovered to his amazement, just as hard for white people to live with as it was for Negroes. A street corner harangue in New York's Harlem produced an incident that was to trouble this tough-skinned agitator for years. It aroused doubts whose resolution, near the end of his life, was as revolutionary as his original conversion to the Black Muslim Movement.

He had just finished a typically vitriolic denunciation of *all* white men:

> *"I'd never seen anyone I ever spoke to before more affected than this little white college girl. She demanded, right in my face, 'Don't you believe there are any* good *white people?' I didn't want to hurt her feelings. I told her, 'People's deeds I believe in, miss —not their words.'*
> *'What can I* do*?' she exclaimed. I told her, 'Nothing.' She burst out crying, and ran out and up Lenox Avenue and caught a taxi."*

The outburst of this white college girl, so anxious to make amends, and the the memory of his own outright rejection of her overture, haunts Malcolm X for years. He returns to it again and again in his *Autobiography*.

Then came a second revelation. He was overwhelmed during his pilgrimage to Mecca by the discovery that Islam was a colour-free religion, and not—as the the Black Muslims had preached—a religion for the black man. Publicly he confessed his error:

> *"In the past, yes, I have made sweep-*

> *ing indictments of* all *white people. I never will be guilty of that again—as I know now that some white people* are *truly sincere, that some truly are capable of being brotherly towards a black man. The true Islam has shown me that a blanket indictment of all white people is as wrong as when whites make blanket indictments against blacks."*

The Hope of Reconciliation

In a frank conversation with an unnamed white United States ambassador to an African country, Malcolm X discovered that he shared with the responsible liberal white Establishment an assessment of American society that, though grim, is not entirely hopeless.

> *"We both agreed that American society makes it next to impossible for humans to meet in America and not be conscious of their colour differences. And we both agreed that if racism could be removed, America could offer a society where rich and poor could truly live like human beings."*

At the end of his life, as he awaited death at the hands of his former comrades for having deserted the Black Muslim movement of Elijah Muhammad, Malcolm X envisioned reconciliation with liberal white America. The man who had been hailed as the apostle of Black Power, unreconstructed and unbending, ended by echoing the same call for the spiritual regeneration of all of America that the integrationist Negro leaders he disdained had voiced time and again.

In the tradition of Martin Luther King, he wrote:

> *"In our mutual sincerity we might be able to show a road to the salvation of America's very soul. It can only be salvaged if human rights and dignity, in full, are extended to black men."*

THE ROLE OF THE UNIVERSITY: TWO VIEWS

1. The Hazards of Social Commitment

STEPHEN J. TONSOR

Has the university gone too far in its involvement with society? Professor Tonsor argues that it has and that as a result it has been diverted from its primary role, which is teaching. The responsibility of the university, he believes, is not to solve social problems, but to explore them systematically and rationally.

The author is professor of history at the University of Michigan, where he won that institution's highest teaching award. His article, which is abridged from "National Review," was described by President Nixon as "the most significant and perceptive analysis of what is wrong with our approach to higher education."

THERE IS A striking parallel between what is happening in government at the national level in America and in the universities. In both cases the institutional structure has increased gigantically in size and in scale of operation. Along with this increase in size has gone a tremendous augmentation of power both real and potential.

But the problems which bedevil both the state and the university are frequently not problems which can be solved by the application of power. For along with size and power has gone a singular inability, despite enormous budgets, to match commitments with resources.

Finally, and most importantly, each finds itself alienated from its constituency. Each has discovered that it is increasingly difficult for it to project an objective which will move men to its single-minded pursuit.

It is not that men no longer believe in government and education. It is rather that they no longer understand either the purpose or the designs of big government or big education.

While the power of both institutions

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has steadily increased, their authority has declined. Ultimately, authority is far more important to education than power, and power without authority in the state soon gives way to tyranny. This parallel between the state and the university is instructive.

What is necessary in order to restore the institutional authority of higher education? How can higher education regain the confidence of the older generation and still command the respect of young people who listen with reluctance, and dissent without debate?

A Wave of Anti-Intellectualism

It would be false to assume that all these difficulties are institutional in origin, that they arise from the fact that the university has either done too much or done too little. It must be said at the outset, and the fact faced with candour and resolution, that the most important problem which higher education faces today is the growing wave of irrationality and anti-intellectualism which has caught up large numbers of both students and professors.

Student and professor activists inside the university and certain ideological groups outside the university no longer believe that truth must be the essential consideration in the academy.

Both the extreme Right and the extreme Left hold the same destructive view of the university and the same low estimate of reasoned discourse. They believe that force ought to be substituted for reason, that power ought to replace persuasion, and that only "socially approved" voices and views should be heard.

They believe that toleration is a weakness rather than a strength in intellectual enquiry, and they are in the deepest sense of the word anti-intellectual. These groups cannot, of course, be permitted to disrupt and destroy the university. But even if they were to disappear tomorrow, the authority of the university would still be undermined.

If the institutional aspirations of education are once more to become credible, universities must regain a sense of modesty and a selectivity in the formulation of their objectives. They cannot be all things to all men. The notion of the huge "multiversity" is rejected with justice by students and by perceptive faculty. They reject it not simply because it is impossible to administer but because it is an institution without goals. It does not know its own mind.

The able administrator in the setting of the multiversity is not a man characterized by unusual educational vision but someone who acutely senses all the many needs of his society. He is committed to servicing those needs and adjusting and compromising between these many conflicting interests.

Little wonder that in such circumstances the teacher feels he is an unwanted encumbrance and the student senses that he is a forgotten man. To compound the problem now by expecting the university to become a court of last resort for the solution of the major social problems of our time will only deepen the crisis which the university faces.

In order to ensure circumstances in which teaching rather than research or community service is the primary objective of the university, government at all levels must forgo the temptation of easy recourse to the enormous resources of the university.

Research vs. Teaching

Recently there has been a great deal of debate concerning the use of the talent and facilities available in the university for defence research. It is not inconsistent to argue that under very exceptional circumstances the university ought freely to use its talent in the defence of society, and still maintain that both the government and the university would be better served under most circumstances were both basic and applied research in the national defence area done in autonomous research institutes.

The same case can be made against the use of the facilities of the new university for the solution of social problems. Finally, business and industry should look to sources other than the university for their pure and applied research.

Much of the debate concerning university research at the present time misses the point. War research is no more illicit or licit than peace research. The only sound test is whether or not research enhances or diminishes the primary teaching function of the university.

And it must be confessed that in spite of the brave talk to the contrary and considerable administrative legerdemain, research has become the tail that in many instances wags the dog. Faculty members who spend the greater part of their time in other than teaching activities distort and confuse the educational purpose of the university.

A Free Market in Education

Education cannot be genuinely relevant to our society and to its needs unless it is diverse both in objective and technique. The possibility for educational diversity in America is immense; but in reality American higher education is homogeneous and uniform.

A handful of major universities set the tone and direction for the whole educational enterprise. Higher education has become in many ways a single mechanism; its professors and students interchangeable parts. Under these circumstances, even student riots are monotonously alike.

One of the major functions of education is to widen the options available to men in the solution of their problems and in the improvement of the quality of their lives; yet our universities steadily diminish and dilute the differences among themselves. Students are still able to choose the quality of their education; they are unable, however, to do much through their own choice about the kind of education they receive.

It is important that we re-establish a free market in education. It is important that the church-related school survive, not as a secularized ghost of its former self but as a school with a genuinely religious vision of the world, a school in which men learn to serve God and their fellow men rather than themselves.

It is important that private humanistic colleges with their commitment to civilization and decorum and their quiet emphasis on freedom remain an important constituent of our educational system. It is essential that we have genuine experimentation in curriculum and method and not the pseudo-experiments hatched by administrators and departmental chairmen who need an excuse for hitting the foundations or the legislators once again for funds.

We cannot have this diversity, however, until the federal and the state governments drastically alter the role they play in financing higher education. American education will become diverse and relevant to the needs of both the student and the nation when, and only when, the student is forced to pay a very substantial portion of the total cost of his education.

Privilege without responsibility is a very dangerous condition. If we genuinely desire diversity we will do all in our power to encourage students to pay for their education through a tax on future earnings after graduation; and we will insist that such educational grants as are made by the federal government will be made directly to the student rather than to institutions of higher education.

The growing sense of alienation among students arises in substantial measure from their inability to choose the quality and kind of education they believe relevant to their lives. Not only should there be a diversification in the kind of college and university training available, but diversification should bring into existence a wide range of educational alternatives to the university itself.

Apprenticeship programmes, proprietary schools, technical institutes operated by industry for the training of specifically needed talents, broadened two-year community college programmes —such alternatives make education more relevant to the needs of the student and the needs of society.

The American public must be disabused of the notion that the Bachelor of Arts degree holds some sort of magic. For some time it has not been a notable mark of status and certainly it is not a guaranteed pass to higher income. Someone needs to say clearly that the way to affluence does not lie through a college degree but through a marketable skill which will secure for its holder and his family the dignity of achievement.

The Perils of Orthodoxy

Nearly every professor has in the past several years encountered, in what he thought a rather sober discussion of an academic question, a sudden denunciation by a student member of his audience. The student does not challenge the professor's method or even question his data but simply rejects his position as immoral, as fascist or racist, or as simply irrelevant.

There is no debate or discussion, no attempt to identify the question or purposefully expose the issue. It is assumed that absolute right prevails on one side and that moral obtuseness or plain wrongdoing characterizes the other side. The issue is not joined; it is not even discussed.

Clearly, what such students seek is a relevant orthodoxy rather than an agonizing enquiry. Faced with some of the toughest choices in history, and living in a period when traditional certainties and traditional values have been challenged, they want to know *what* to think rather than *how* to think.

And the student has far too many professors who are willing to tell him what to think rather than attempt to teach him how to think for himself. His professors, especially in the humanities and the social sciences, have all too often been exponents of an established orthodoxy rather than masters in the art of reasoned enquiry.

The situation is not to be mended by diversifying orthodoxies, by replacing the liberal orthodoxy with a New Left orthodoxy, a permissive and tolerant orthodoxy with a repressive orthodoxy. Such efforts can only compound the problem, for the liberal ascendancy in today's colleges and universities is like the pre-1918 Austrian Empire—"an autocracy ameliorated by inefficiency"—while leftist student dictatorships would end altogether the life of reason.

The professor, if he is to re-establish the authority of reason, must not only admit of the possibility of his being wrong but must have the openness of mind necessary to, as Lord Acton said, "make out the best possible case for error." He must actively court diversity and contradiction rather than seek a world of like-minded men. He must continuously engage in a great debate not only with his students and his colleagues but above all with himself.

The authority and the relevance of the university lie in its ability as an institution to explore systematically and rationally the problems men face. Its success is not dependent upon current fashions in ideas or current solutions to particular problems. Its success derives from its ability to take the long view and ask the hard questions, and the hardest of these is the question the professor asks of himself, of his colleagues and of his society, about the possibility of being wrong.

2. If not the University

JOHN J. CORSON

The university must not only transmit knowledge, it must apply that knowledge to urgent social problems, argues the author. John J. Corson has himself moved easily between the academy and public affairs. Currently a consultant to the chairman of the Urban Coalition, he has also been a professor of public and international affairs at Princeton University, a journalist, a director of U.S. social welfare programmes, and an adviser to private industry.

Abroad, he has served as a consultant on government organization in Iran, on social security in Mexico, and on educational programmes for UNESCO. His books include "The Governance of Colleges" and "Universities and Public Administration in Modern Society." His article is abridged from "The Educational Record" magazine.

AMERICANS TEND to have fixed ideas as to the separate and distinct roles of business, of government, and of the universities. Yet today we see a dozen private business enterprises each of which, on contract, spends more government money than some departments of the federal government. We see federal agencies that perform more of the work for which they are responsible through contracts with private business firms and universities than they perform with their own employees. And we see a group of universities fulfilling a widening range of services for state and local governments and for business enterprises.

For the neat traditionalist, things have gotten all mixed up. In the face of the burgeoning demand for public services confronting most universities, old cliches about the university's function as being the discovery and dissemination, but *not* the application, of knowledge are no longer plausible.

The changing role of the university is illustrated on many campuses. A distinguished Harvard professor designed a garbage disposal ship for the city of Boston. At the request of a large private employer, the faculty of a liberal arts college

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trains foremen in the employer's plant. At another university, education professors have developed programmes for the U.S. Office of Education to encourage the social and economic rehabilitation of the unemployed. A medical school faculty contracts to provide medical care for a poor and largely Negro neighbourhood. Across the country, many professors are on leave, working with government agencies, and playing significant roles in the larger community's affairs.

But why turn to the university to meet social needs? Why should not private enterprise satisfy these new demands as historically it built railroads, invented the gadgets that have made life simpler, discovered new life-saving drugs, and created better textbooks? Why has not the government expanded its staff and geared itself to handle the new facets of international relations, or to provide the social services needed to combat racial tension?

Unique Institutional Strengths

There are five reasons why American society increasingly turns to the universities for aid in solving the complex problems it faces.

First, the university provides unique institutional strengths. It has a staff, buildings and grounds, an endowment, and—most important—a climate within and a prestige without that give it special leverage in confronting social problems.

Second, the universities, as they have grown, have acquired a substantial monopoly of the particular kind of human talent required for dealing with the problems of a society as distinguished from the problems of an enterprise. It is not that the universities have a corner on superior intellects. Indeed, the rewards offered by the profit-making world, whether in business or the professions, are so much greater that government and the universities are often at a disadvantage.

But the business world seldom focuses its attention and energy on the formulation of foreign policy, the design of educational programmes, space exploration, or the eradication of urban blight. The university has a substantial and growing proportion of men and women who are capable of, and concerned with, concentrating informed intelligence on such problems.

Third, the universities nurture a discipline of objectivity. The sales manager, civil rights leader, union official, corporation lawyer-negotiator, or political executive in government cannot afford (nor has he time for) objectivity. Moreover the organization itself—corporation, union, government department political party or even the Church—demands or perhaps even requires for its survival acceptance and conformity with its policies.

Hence after a decade or two spent plying their trades, most businessmen, most public officials, union leaders, and preachers are so habituated to one way of thought that they cannot attack a problem with the fresh, detached objectivity that is required. William James was surely right when he wrote of the scarcity and "infinite value" of "the capacity for non-habitual perception."

Fourth, the universities are committed to the search for new knowledge.

The fact that we live in a time of what has been dubbed "the science-based society" implies that advance in many, or most, fields depends upon the creation of new knowledge. The day when progress was based on tinkering and improvisation has passed.

Solutions for not only our physical ills (cancer and heart disease, for example) and scientific problems (like those in space exploration), but also for our international problems, and yes, even our racial difficulties will most likely be found in the minds of those who have the capacity, time, and inclination for rigorous, detached, creative thought.

Fifth, a university possesses values; it stands for something. It stands, indeed, for some of the most civilizing values of which we know—freedom of thought and expression, for example.

A New Pluralism

This poses some conscience-shaking questions: Can a university be true to itself let alone to the society that supports it if with the knowledge at its command or within its reach it does not, for instance, accept responsibility for administering, through its medical school, programmes that would alter the lives of crippled children?

Or can a university, which has access to or can create knowledge that might lighten the social problems of our cities, be true to its purported beliefs if it does not collaborate with regional and municipal authorities in efforts to combat juvenile delinquency, reduce racial conflict, or renovate obsolete forms of local government?

Or can a university stand by when it has the technical personnel needed to build educational, governmental, agricultural, or health institutions in developing countries? Or can a university choose to have no part in the national effort to achieve stable economic growth?

Because it uniquely combines needed qualities, the university must inevitably be drawn deeper into social issues. Already, writes Professor Daniel Bell, "the university is taking on a vastly different role. It is becoming one of the active shapers of the society, taking over, perhaps, the role which the business firm played in the past hundred years."

A new form of pluralism is emerging in American society. Even while the federal government grows larger in function and expenditures, it tends to diminish in relative size, if size is measured by the conventional yardstick of employment. It achieves this by contracting for assistance on the solution of problems, ranging from the sweeping of floors to the determination of how to explore, under the seas, the very core of the earth.

Consider the magnitude of this trend. The federal Department of Health, Education and Welfare held contracts in a recent year with more than 700 nonprofit institutions (including many colleges and universities) throughout the country.

The National Aeronautics and Space Administration utilized more than 90 per cent of its total appropriation to finance contracts for the provision of services by nongovernmental agencies—business enterprises, universities, and research institutions. And in general, the government has gone very far in asking, or permitting, nongovernment agencies to participate in decisions which elsewhere are made only by government.

Need for Talent

The reason seems clear. A science-based society is an aggregate of increasingly specialized institutions and individuals. For the solution of new problems, in both public policy and individual enterprise, the society must seek the specialized talent that can create new knowledge for dealing with new questions. Hence, government as well as business increasingly looks beyond itself for assistance.

American society is abandoning an old system of organization and creating a new one. We are abandoning, because it is obsolete, a system in which agencies of government, business corporations, and universities conducted their affairs as if they were islands unto themselves.

A new system, which merges the capabilities of each agency into an integrated effort, is being built because the tasks we want to accomplish are too big (e.g., the building of the supersonic transport) or too important (e.g., the development of an artificial heart) for any one organization alone. In this new cooperative trend, the university, with the unique capabilities it possesses, will be expected to play a large part.

Indeed, philosophers of the 21st century may say that this was the way we preserved political and economic democracy in American society. Because of the rigour of specialization, big government and big business were prevented from becoming all-encompassing consumers of scarce talent and the only centres of power.

Some will ask: What's new in all this? The land-grant college accepted this obligation for the dissemination and application of new agricultural knowledge a century ago.

What is new is simply this: American society now avidly seeks talent for the solution of many more problems than those of the farm and rural population that the land grant colleges have been concerned with for decades. It seeks persons with highly specialized skills, the capacity for objectivity, and an openness to new ideas. And all of this places new and heavy demands on the university.

We see these demands reflected in pleas for assistance from scores of urban centres; in the seduction by business firms, through consulting contracts, of the mobile members of university faculties; in provisions of such recent Congressional legislation as the Higher Education Act, the Economic Opportunity Act, the "Cancer, Heart, and Stroke Programme." It is manifest in plans of the National Association of State Universities and Land-Grant Colleges to undertake a study of "The State University and Public Affairs."

The University of the Future

Can the university accept these added responsibilities? The conventional answer to this question is that the university's responsibilities are, first and foremost, the discovery of knowledge (research) and second, the transmission of knowledge (teaching).

Those who emphasize this view will rightfully inquire: Who is going to do the teaching? Will faculty members who become involved in projects outside the university maintain their detachment? Can the institution accept such responsibilities and maintain its autonomy? And where is the money coming from?

The answers to these questions are unclear. But this much is clear. American society today is desperately seeking the means to revitalize cities, improve schools, lengthen lives, overcome racial tensions, and find solutions to international ills.

And this society is plagued by the fact that most of those able to help on such problems are, in the words of John W. Gardner, head of the Urban Coalition, "simply tending the machinery of that part of the society to which they belong. The machinery may be a great corporation or a great law practice or a great university. These people tend it very well indeed, but they are not pursuing a vision of what the total society needs."

One of the things our society needs is universities willing to accept increasing responsibility for moving ideas along the road to action, for learning how to develop the knowledge needed, and how to apply useful knowledge in the solution of society's major ills. The result may be to make the university an intellectual holding company.

Even as it now has subsidiaries, known as colleges, concerned with teaching and research, it will increasingly have subsidiaries such as institutes, laboratories or centres engaged in both research and the practical application of new knowledge.

Some will question this vision for the future. They will insist that the university limit itself to teaching and research, and less government-supported or related research at that. But those who take this traditional view must still answer the question: If not the university, what agency will accept the responsibility for finding *and applying* the knowledge that is needed to shape a better world?

GANDHI AND NON-VIOLENCE

CHRISTOPHER LASCH

GANDHI'S TRUTH: ON THE ORIGINS OF MILITANT NON-VIOLENCE. By Erik H. Erikson. 474 pp. New York: W.W. Norton & Co.

Among the books which appeared in 1969 to celebrate the 100th anniversary of Mohandas K. Gandhi's birth, perhaps the most searching and original was written by the American psychoanalyst, Erik H. Erikson. The following essay-review is reprinted from "The New York Times Book Review." Christopher Lasch is professor of history at Chicago's Northwestern University and author of "The New Radicalism in America" and "The Agony of The American Left."

GANDHI'S TRUTH, even more brilliantly than its predecessor, *Young Man Luther*, shows that psychoanalytic theory, in the hands of an interpreter both resourceful and wise, can immeasurably enrich the study of "great lives" and of much else besides. With these books Erikson has single-handedly rescued psychoanalytic biography from neglect and disrepute.

The early practitioners of the method, including Freud himself, used it almost exclusively to debunk and deflate. Erikson understands that to reduce illustrious men to their symptoms explains everything except the one thing that most needs to be explained—their greatness itself.

He has made this problem the central focus of his biographies and thereby produced works as subtle, delicate, evocative, and allusive as the early models were clumsy and one-dimensional.

To have restored psychoanalysis to intellectual respectability, not only among biographers but among social scientists generally, would alone have established Erikson as one of the outstanding exponents of psychoanalysis now writing. In a series of other works, however—on youth, identity, culture, and many related

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subjects—Erikson has begun a major reorientation of psychoanalysis itself.

Breaking with the rigid determinism according to which the personality takes its final shape during infancy, he has insisted on the importance of later experience and especially of the "identity crisis" so often experienced by people in their late teens or early twenties.

His concern with questions of identity has led Erikson in turn to consider the role of culture in shaping identity (as well as the role of identity crises in great men as an influence on the history of culture).

Science and Therapy

Almost from the beginning, psychoanalysis has sought to become a science of society as well as a therapy for individuals. Most psychoanalytic theorists have been unsuccessful in leaping from the biographical to the historical without sacrificing the precise insights derived from clinical practice to vague and empty speculations about history and prehistory. Freud himself set a bad example with theories like that of the "primal horde."

Erikson's ideas, however, rest on the solid footing of clinical encounters. The concept of the identity crisis, drawn from careful observation and practice, serves as the basis from which Erikson has launched remarkable investigations of the religious temperament, of the problem of generations, and—especially in his recent work—of the need for "a new ethics" as the only alternative to the existing philosophical chaos.

Gandhi's Truth consists of a psychological reconstruction of Gandhi's early years in Kathiawar on the Arabian Sea and his years of exile in London and South Africa, followed by a detailed analysis of the strike of textile workers in Ahmedabad in 1918, in which Gandhi first put into practice his own variety of militant nonviolence or Satyagraha.*

A Relentless Conscience

With great care Erikson traces the unfolding of a "precocious and relentless conscience," laying special stress on the way in which Gandhi's nursing care of his aging father, a civil servant whose health and career were both declining during his son's youth, not only served to conceal the wish to replace the father but set the pattern "for a style of leadership which can defeat a superior adversary only nonviolently."

He examines the effects on Gandhi of his premature and in many ways disastrous marriage, which left him with a horror of sexuality but which also made impossible the monastic retreat to which his developing religiosity might have led. In Gandhi's case the quest for sainthood therefore had to take political form.

As for "the event" itself—the textile strike over which Gandhi assumed leadership—it serves Erikson as an exploratory and therefore unusually interesting exercise in nonviolence, a "revolutionary kind of human ritualization."

The strike ended in an ambiguous and inconclusive victory for the workers but this is perhaps less important than the remarkable discipline and courage they

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*A reader of *The American Review*, Shri S.M. Ali Musvi, points out that Satyagraha is best rendered in English as "true persistence"; that Ahimsa relates more to "non-violence." (Ed.)

displayed in the course of their struggle—qualities that persuaded Gandhi that people do respond to "an appeal to their soul."

The Humanity of the Adversary

On the strength of this material—the richness and almost inexhaustible suggestiveness of which cannot be conveyed in a summary—Erikson proposes a number of conclusions. Space permits us to deal with only one: the assertion that Satyagraha represents "a better and more expeditious way of righting wrongs," in Gandhi's words, than other forms of political action. Unlike the others, Satyagraha seeks to cure men of the "righteous and fanatic moralism" that is the major source, in Erikson's view, of irrational violence.

Moreover, it is the only politics that instead of dividing men seeks to reconcile them (while at the same time pursuing revolutionary objectives) and thus contributes to the struggle for "more inclusive identities"—the sense of mankind as a single species instead of a collection of mutually hostile subspecies. It does this by recognizing the humanity of the adversary and by seeking to shame him rather than to exterminate him.

The objection that nonviolence can only work against adversaries that already possess highly developed standards of decency—that it is useless, for instance, against fascists—misses the point, since according to Satyagraha, decency is latent in all men as part of their very humanity. To decide in advance that certain adversaries are incapable of decency is therefore to accuse them of inhumanity and to fall into precisely that arrogant moralizing from which Satyagraha proposes to deliver us in the first place.

The Danger of Moral Arrogance

A much more important question is whether nonviolence represents the only political escape from moral arrogance. This question takes on new urgency at a time when the American Left has largely abandoned nonviolence for a neo-Leninism that is the quintessence of "righteous and fanatic moralizing." It is fortunate that Erikson has chosen this moment to confront us with so fresh and compelling a restatement of the case for nonviolence.

Violence as such, however, may be a false or at least a misleading issue. Gandhi himself wrote, in the aftermath of the Ahmedabad strike, that most of his followers had taken up nonviolence not from a consciousness of their own dignity and strength but "because they were too weak to undertake methods of violence."

For a time he decided that "we shall not be fit for swaraj (home rule) till we have acquired the capacity to defend ourselves." "This new aspect of non-violence," he added, "..has enmeshed me in no end of problems."

What these reflections suggest is that the political choice lies not between violence and nonviolence but between the disciplined use of violence, free from bloodthirsty moralizing, and irrational riot.

Erikson rules out the Western revolutionary tradition as an alternative to nonviolence, partly for the good reason that it has too easily allied itself with cold-blooded violence and terror, but partly because he mistakenly assumes that revolutions are invariably violent. In fact they tend to degenerate into irrational violence only when a self-chosen "vanguard" of professional revolutionaries tries to impose its will on the majority.

The Problem of Leadership

This leads us to the most interesting point to emerge from Erikson's book—one that incidentally helps to explain why large-scale outbreaks of violence have so often followed nonviolent campaigns both in India and in the United States.

While Gandhi was implacably opposed to Leninism, he was at one with Lenin (without knowing it) in believing that struggles for change have to be led by professional revolutionaries. In Gandhi's case, this belief took the form of the demand that the true Satyagrahi abstain from sexual relations. "A passive resister," according to the Mahatma, "...can have no desire for progeny."

What this means in practice is a leadership that has cut itself off from "generativity" and "householdership," to use Erikson's terms, and from all the daily concerns connected with the maintenance of life. For this reason it is essential, according to Erikson, that nonviolence no longer remain restricted to ascetics and practical saints; "for the danger of a riotous return of violence always remains at least latent if we do not succeed in imbuing essential daily experiences with a Satyagraha-of-everyday-life."

It is not likely, however, that a politics in which an exalted ideal of personal heroism plays so large a role can ever become genuinely popular or, indeed, even ought to become popular. "Your duty," Gandhi wrote to an unfaithful follower, "lay in honouring (your commitment to the movement), even if your entire family were to starve in consequence."

A movement that finds it necessary to use such language is elitist almost by definition, and even though it may attract a mass following among the weak and oppressed, that following can easily turn to irrational violence if its expectations are too rudely disappointed.

Basic Values

In asking for a Satyagraha-of-everyday-life, Erikson would seem to be demanding a contradiction in terms. Nevertheless his proposal has enormous value, because it exposes the crucial weakness not only of the nonviolent tradition but of the socialist tradition as well—their common failure to root revolutionary action in the everyday "maintenance of life."

On one level Gandhi dealt wisely with this problem and commands our continuing attention, for as Erikson points out, he was always "cautious in leaving intact ancient fundaments for which he had no immediate revolutionary alternatives."

The problem for Western radicals is to combine this wisdom, together with Gandhi's insistence on the humanity of one's adversaries, with a revolutionary practice that does not depend for leadership on "vanguards" of the elect. Otherwise nonviolence itself can become a form of moral arrogance as pernicious as any other.

BOOK NOTES

The books briefly reviewed in these notes are available in many of the American Libraries in India. These libraries are located in Bombay, Calcutta, Madras and New Delhi; also in Bangalore, Hyderabad, Lucknow, Patna, and Trivandrum.

THE AMERICAN CULTURE; APPROACHES TO THE STUDY OF THE UNITED STATES, Comp. by Hennig Cohen. Houghton, 1968. 416p. These selected essays, originally published in the *American Quarterly,* illustrate some of the ways in which the American cultural experience is organized and expressed and some major forces that bear on and shape American culture.

EDUCATION LAW, by George Marion Johnson. Michigan State, 1969. 258p. The author presents here an overview of traditional American education law and its expansion into areas previously restricted to academic institutions. Issues of academic freedom, legal rights of students, the state and federal roles in education, teacher strikes, and an assessment of the impact of the 1954 Brown Decision are covered.

ECONOMIC DEVELOPMENT OF TROPICAL AGRICULTURE: THEORY, POLICY, STRATEGY, AND ORGANIZATION. Ed. by W.W. McPherson. Univ. of Florida, 1968. 328p. The papers which make up this book were presented by a group of internationally recognized agricultural experts in a series of seminars at the University of Florida in 1966. Levels of public investment in irrigation and drainage, and disease and pest control are some of the problems discussed. All agree on the need for a balanced strategy which takes into account political, social, physical, technical, and economic problems.

COLLECTIVE SEARCH FOR IDENTITY, by Orrin Edgar Klapp. Holt, 1969. 383p. In this discussion of contemporary society, the author maintains that personal identity problems common to millions are social phenomena and therefore are issues of social policy. Five varieties of identity problems visible in America in the late 60's are identified as: contagious ghetto violence, New Left activism, Radical Right extremism, style rebellion, and the drop-out most conspicuous among hippies.

FIFTEEN MODERN AMERICAN AUTHORS: A SURVEY OF RESEARCH AND CRITICISM. Ed. by Jackson R. Bryer. Duke, 1969. 493p.

Leading scholarly authorities present here bibliographical essays on fifteen major American literary figures of the first half of the twentieth century. This collection surveys the most significant research and criticism on each of these authors, and provides much information about American literature of the era.

IDEOLOGY IN AMERICA; CHANGE AND RESPONSE IN A CITY, A SUBURB, AND A SMALL TOWN, by Everett Carll Ladd. Cornell, 1969. 378p. Using survey data from a study of three Connecticut communities—a central city, a white-collar suburb, and a small mill town—the author investigates the hypothesis that the new agenda of politics has transformed the liberal-conservative ideological dichotomy into one best characterized as cosmopolitan-parochial. The thesis persuasively demonstrates that ideology is not dead in the U.S., but it has entered a new dimension as our society itself has entered a new age.

PRESENT AT THE CREATION; MY YEARS IN THE STATE DEPARTMENT, by Dean Acheson. Norton, 1969. 798p. The events of 1941 to 1952 depicted by someone so active in decision making are enthralling. With anecdotes and an observant eye Acheson gives an account of his economic-warfare activities during World War II and the part he played in developing the Truman Doctrine and Marshall Plan. It is the memoir of a prime mover in the shift from America's isolationism to collective security that took place between those years, during which he served as an Assistant Secretary, Under Secretary, and lastly as President Truman's Secretary of State.

PSYCHOLOGY AND POLITICS; AN INTRODUCTORY READER. Leroy N. Rieselbach and George I. Balch, eds. Holt, 1969. 305p. The editors seek to explain why people hold specific opinions in politics, why some participate actively while others remain relatively uninvolved, and how government officials make policy decisions. It is a behavioural approach to the study of politics made through an analysis of thirty scholarly papers.

SAINT-GAUDENS AND THE GILDED ERA, by Louise Hall Tharp. Little, 1969. 419p. Gracefully written and based on meticulous research, this biography of a leading sculptor is filled with rich anecdotes drawn from correspondence and interviews. Saint-Gaudens had and still has great influence on American sculpture. The descriptions of his method of work on his famous statues are interesting. The book is illustrated with photographs of the works and of the people discussed.

TOWARDS DISENGAGEMENT IN ASIA: A STRATEGY FOR AMERICAN FOREIGN POLICY, by Bernard Gordon. Prentice, 1969. 186p. Prof. Gordon, the Southeast Asia Project Chairman of the Research Analysis Corporation, attempts to break new ground regarding cooperation among Southeast Asian countries. He demonstrates that groupings of Asian states represent a development generally mutually advantageous and favourable to world interests, and advocates neither American withdrawal nor dominance in Asia, but rather an Asian multipolar structure.

THE THREE DAUGHTERS OF MADAME LIANG, A NOVEL, by Pearl Buck. John Day, 1969. 315p. The Chinese intelligentsia of today are the subject of this novel—some are communists, some traditionalists indifferent to politics, some are old-line revolutionaries who supported Sun Yat-Sen, and some are young scientists educated in and torn between two worlds, China and the West. This is a credible presentation of life today in Communist China.

THE TRANSFORMATION OF AMERICAN FOREIGN POLICY, by Charles E. Bohlen. Norton, 1969. 130p. Here is a concise, authoritative and readable review of American foreign policy during the 1940's, when America's traditional isolationism was replaced with active and responsible participation in world affairs. As former ambassador to Moscow and Paris and an adviser and Presidential interpreter at the Tehran, Yalta, and Potsdam conferences, the author describes the beginning of the Cold War in 1947-1948.

WILLIAM DEAN HOWELLS; THE FRIENDLY EYE, by Edward Wagenknecht. Oxford, 1969. 340p. Howells in this volume takes his place as one of America's leading novelists at the turn of the present century. Various chapters cover his life and reading, his writing, and his influence on other writers.

THE WORLD FOOD PROBLEM; A GUARDEDLY OPTIMISTIC VIEW, by Willard W. Cochrane. Crowell, 1969. 331p. A comprehensive, authoritative review of the world food problem is provided in this book within the broad context of international, economic, social, and political development. This timely and useful study of the food problem and the difficulties surrounding it in both advanced and developing countries also contains some recommended solutions.

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BOWSPRIT

"WAS IT all just a passing fancy—the speeches, the clean-ups, the teach-ins, the public promises and private vows. . . . ?" asked the *New York Times* in an editorial about *Earth Day*, celebrated in America on April 22. The editorial ended: "Suddenly 'ecology' is on everybody's lips. Concern with ecology is fashionable nowadays. But if the fad dies, we die with it."

Why an *Earth Day*, and why should ordinary people care about ecology? The first half of this issue of *The American Review* suggests the reason. Seven articles, selected from the vast number which have been flooding the magazines in America, introduce a subject which, we hope, will be in the forefront of our thinking and our actions as long as we live.

Commenting on the dramatic events of America's Earth Day, *The Times of India* on April 23 called man's abuse of his environment "a planetary problem," not a problem only of technologically advanced countries, nor only of the large, populous countries. All contribute to the abuse; no national boundary or nuclear weapon can protect against it; no human being can escape suffering from it.

Too many people; too much pollution, too much exploitation of the human habitat, too little preservation—this is the problem. Humanists, scientists, journalists, and civic leaders intend to keep us aware of it until effective action is taken. What action? No one knows surely.

Partial answers exist. Some immediate steps can be taken if public opinion forces protective legislation and a re-ordering of priorities in public spending. Full correction has to await the slow results of research not yet begun. To give our progeny a chance to live in health is too serious a subject for inaction, too serious for impatience.

Our first article is "A Race for Survival" by *LaMont C. Cole* in which he sketches our "collision course with disaster" and paints in broad strokes the possibility that the course can be reversed—if mankind insists, and acts.

Ecology is the means to getting off the "collision course", writes *William Bowen,* and he explains for non-scientists what this new science is and can do, in "What is Ecology?"

In "The State of Our Ignorance" *Rene Dubos* notes how little we know about our human habitat and how much we need to know if we are to preserve it, and calls for the establishing of new interdisciplinary research institutes, outside of the universities, to investigate environmental problems.

But not everything has to await new research, according to *Philip Wylie* who in "Confrontation in the Everglades" gives an illustrative case study of what aroused public opinion did to conserve ecological balance in rare wild lands.

The major problems are in the huge cities. *Jane Jacobs,* however, wastes no time deploring their evils in the usual way in her article "Cities as Mines". She glories in them as inexhaustible mines, the bigger the better, which some day, through proper re-use of so-called wastes can lead to purer living and life in abundance.

Two men who care deeply about the human environment are R. Buckminster Fuller (who received an honorary degree from Delhi University last winter) and Lewis Mumford, the one a technologist, the other a humanist. They approach the problem of the city from different views of the nature of man and society, as *Allan Temko* shows in "Which Guide To The Promised Land." Yet, for all their opposition, both are men of faith, believers that a valid global order can be established.

The greatest ecological damage has occurred in the industrialised nations. In "Environmental Problems in Developing Nations," *Luther J.Carter* suggests that the nations with developing economies, learning from others' experience, can plan a new style of development which will bring ecological as well as economic benefit.

As the ecologists urge comprehensive planning, so does the political scientist, *Harvey Wheeler*. In "Bringing Science Under Law" he surveys in a somewhat unorthodox way the course of Western science and ethics during the last fifteen hundred years, considers the dire possibilities ahead if science and ethics are not re-married, and suggests a new framework for control and freedom.

In "The Bitter Comedy of Samuel Beckett" *Guy Davenport* captures in a brief essay the essence of the 1969 recipient of the Nobel Prize for Literature. This is followed by an illustrative excerpt from Beckett's novel, *Molloy*.

Most Americans are educated, skilled craftsmen and white-collar workers who use labour unions to achieve their economic goals and use other means to express their political and social interests. This contrast with European labour movements and the current status of the American labour movement are analysed by *Ben*

B. Seligman in "A Balance Sheet of American Labour"

W. Arthur Lewis in "Black Power and The University" looks as dispassionately as he can at the American racial problem, with special attention to the value of the best universities to the advancement of black Americans. His views are in marked contrast to those of the widely publicised Militants.

In "War Is Not In Our Genes" *Sally Carrighar* takes sharp issue with the thesis that aggression is an instinct in all animals, including man. She is a longtime, acute observer; one hopes she is right.

BOOK WORLD reviews two books which cut across national boundaries: *Anderson, von der Mehdin* and *Young* "Issues of Political Development", a study of nation building, violence, and socialism in developing economies; and *Feuer* "The Conflict of Generations" in which a Freudian interpretation is given to student rebellions in different times and places.

M.C.

A RACE FOR SURVIVAL

LAMONT C. COLE

Man has been tampering with his environment ever since he appeared on earth, writes Dr. Cole, but only in the twentieth century have his activities critically threatened his own survival.

Dr. LaMont C. Cole is professor of ecology at Cornell University and a member of the advisory commission on environmental biology of the National Science Foundation. He was in India last month to participate with Indian scientists and social scientists in symposia on science and society under the auspices of the U.S. Information Service.

Dr. Cole has served as president of the Biophysical Society and the American Institute of Biological Sciences. Recently he was a member of the federal commission on pesticides which recommended a ban on the use of DDT because of its long-range effects on plant and animal life. His article is reprinted from "Population Bulletin."

MAN IS CHANGING the world environment. He has been doing this almost from the time of his appearance as a new species a million or so years ago, but now he has become so numerous and technologically adept that there is a real danger he may destroy the ability of the earth to support life.

Early man subsisted by gathering wild foods and by hunting and fishing. At some point he discovered that he could use fire to drive game animals, and this was the start of man-made air pollution and soil erosion.

However, early man was incredibly lucky. In many places the forests he burned were replaced by grasslands which supported increasing populations of grazing mammals. Then these grasslands developed soils that would eventually place them among the world's most valuable lands for agriculture. Although the evidence is lost in the past, man's first use of grasslands was probably for the grazing of domestic animals and this grazing probably helped to inhibit the regeneration of forests.

Early agricultural man would have found it virtually impossible to cope with the heavy sod of grasslands, and so he confined his efforts to the flood plains of rivers where the soil was fertile, well watered and easy to cultivate with simple tools. He learned to store food so that the produce of the growing season could support him and his domestic animals throughout the year.

Then he started to build towns and cities and to expand his numbers and he felt the need for more agricultural land and year-round agriculture. These needs were satisfied by building dams and canals for irrigation. Great civilisations grew up in the valleys of rivers such as the Tigris, Euphrates, Nile, and Indus, and their human populations multiplied.

There were, however, side effects. The very crowding of people into towns and cities exposed them to frequent epidemics, and these, together with wars and famines, took a frightful toll of human life. The smoke from man-made fires polluted the atmosphere, and the erosion of soil from burned-over and over-grazed slopes polluted bodies of water and sometimes blocked streams to create swamps and marshes with attendant health hazards such as malaria.

At this stage man could not anticipate the disasters that his own activities were bound to create. Without adequate drainage, for instance, his irrigation works would cause water to move upward through the soil, where it would evaporate and deposit a fertility-destroying layer of salts on the surface.

The Ravaging of Resources

As soils were rendered lifeless by salts and as irrigation systems filled with silt, great civilisations vanished. Pliny tells of the farmers of the great Babylonian Empire, dating from before 2000 B.C., who harvested two annual crops of grain and grazed sheep on the land between crops.

Today less than twenty per cent of the land in modern Iraq is cultivated and more than half of the national income is from oil. The landscape is dotted with mounds representing forgotten towns; the old irrigation works are filled with silt (the end product of soil erosion), and the ancient seaport of Ur is now 150 miles from the sea with its buildings buried under silt as deep as thirty-five feet.

We hear a great deal today about the "underdeveloped" and "developing" nations but, as in the case of Iraq, many of them could more accurately be described as *overdeveloped* nations. Modern Iran was once the seat of the great Persian Empire where Darius I was the "King of Kings" 2400 years ago. Ancient Greece had forested hills, ample water and productive soils, and it is clear from Plato's *Critias* that he knew that deforestation and overgrazing could cause soil erosion and the drying up of springs. Apparently nobody listened to his warnings.

The glories of ancient Mali and Ghana in West Africa were legends in medieval Europe. In the land that once exported the cedars of Lebanon to Egypt, the erosion-proof Roman roads and the soil beneath them now stand several feet above the rock desert. In China and India, ancient irrigation systems stand abandoned and filled with silt.

India, two centuries ago, had a population of about sixty million. Today it is over 500 million and most of its land problems have been created in the past century through deforestation and plough-ing and the resulting erosion and siltation, all stemming from efforts to support such fantastic population growth.

Everyone knows about the wonders of ancient Egypt. The annual spring flood of the Nile watered and fertilised the soil, and crops could be grown for seven months each year. Extensive irrigation systems were established before 2000 B.C. The country was the granary of the Roman Empire, and agriculture flourished for nearly 4000 years.

But in 1902 a small dam was built at Aswan to prevent the spring flood and permit year-round irrigation. Now the soils are deteriorating from salinisation. The new Aswan High Dam is designed to bring another million acres of land under cultivation; the resultant deterioration of the soil may prove disastrous. Meanwhile, population growth has virtually destroyed any possibility that the new agricultural land can significantly raise the per capita level of nutrition.

Erosion in the Americas

In various parts of South America and Africa modern aerial reconnaissance has revealed ancient ridged fields on flood plains. These are the remnants, according to J.J. Parsons and W.M. Denevan, of "a specialised system of agriculture that physically reshaped large parts of the South American continent." In many parts of Mexico towns that were originally located to take advantage of superior springs now must carry in water from distant sites. And in Guatemala and Yucatan the ruins of the Mayan civilisation stand as stark evidence of what the land was once capable of supporting.

In the comparatively young United States thousands of acres of agricultural land have been lost to erosion and gullying, and thousands more to strip mining. The inherent fertility of the best agricultural land is declining so that yields can only be maintained or increased by massive programmes of fertilisation.

In the irrigated lands of the western United States there is the constant danger of salinisation, while from Long Island to southern California we have lowered water tables so greatly that in coastal regions salt water is seeping into the aquifers (water-bearing beds of earth, gravel, or porous stone). Meanwhile, an estimated 2000 irrigation dams in the United States are now useless impoundments of silt, sand and gravel, and a conservatively estimated million acres of land per year are being sacrificed to paving, building, and other manifestations of "progress".

This is what man has done to the land. In the last three hundred years, moreover, he has been able to accelerate his destructive processes by obtaining energy from the fossil fuels—coal, peat, natural gas, and petroleum. Several recent surveys have found that modern "progressive" farmers expend more calories running their machinery than they remove from the land in crops.

Now, quite suddenly, man has come to realise that these fuels will soon be exhausted—various estimates of the timetable give us anywhere from twenty years to a half-dozen generations. By then, present thinking holds, we shall have converted to nuclear energy. But uranium and thorium are also exhaustible resources, and modern reactors convert less than one per cent of the energy in their fuel into electricity—as compared with some forty per cent for conventional plants burning fossil fuels. Indeed, the nuclear age threatens us with a wholly new magnitude of global contamination.

The Growth of Pollution

Like soil erosion and deforestation, man-made pollution has an ancient history. Neolithic man started polluting the environment with his fires, though the major resulting pollutants—smoke, soot, silt—also existed without man. But many new pollutants appeared as civilisation advanced.

The Romans mined lead in Britain and smelted it there, and it is said that the sites of these old smelting operations can still be recognised by the impoverished vegetation growing on the poisoned soil. In Rome the lead went into paints, water pipes, and the lining of vessels in which wine was stored. Recent studies of Roman bones have shown concentrations of lead which indicate that many members of the upper classes must have suffered from lead poisoning; it has even been suggested that this may have contributed to the decline of the Empire.

As cities grew they began to concentrate materials produced over a wide area into a small space, and as these materials gave rise to wastes, pollution problems arose. Otto of Friesing's *Chronicon* tells us that when Frederick Barbarossa's army arrived in Rome in the summer of 1167: "...the ponds, caverns, and ruinous places around the city were exhaling poisonous vapours, and the air in the entire vicinity had become densely laden with pestilence and death."

Waters were also polluted. The name "Rhine" was supposedly derived from the German word for "pure"; but by the thirteenth century St. Hildegard wrote that the Rhine's waters, if drunk unboiled, would "produce noxious blue fluids in the body."

Man-Made Wastes

Man added a whole new dimension to environmental pollution when he started burning fossil fuels for energy. In the year 1306, a citizen of London was tried and executed for burning coal in the city, but three centuries later coal combustion was a way of life and London had a smog problem. This new source of energy made it possible for many more people simultaneously to inhabit the earth than ever before, and the resulting colonisation and exploitation of new lands further aggravated environmental deterioration.

With the start of the twentieth century, petroleum assumed a growing role as a source of energy. The internal combustion engine and a huge, diverse chemical industry have released into the environment countless new materials to which the world's living things have never before had to adapt. Miraculously, man's run of dumb luck has continued—and the biogeochemical cycle on which his life depends have kept on functioning. But in the last three decades, man-made stresses on the environment have so intensified that it would be incredible if such luck long continued.

The pollution problem, of course, is not limited to the by-products of our commercial activities. Waste matter is also a major culprit. We have continued to dispose of our wastes as of old—largely by dumping them into the atmosphere and hydrosphere—and human populations are now so dense that it is difficult to see how we can ever reclaim a clean environment.

Because of these biological wastes and other pollutants, it has been estimated by the U.S. Food and Drug Administration that we are now exposing ourselves and our environment to over a half-million man-made substances, and that this number is growing by between four and five hundred new chemicals per year. Just in the past twenty-five years we have asked the environment to cope with such unprecedented classes of materials as synthetic pesticides, plastics, antibiotics, radioisotopes and detergents.

The Oxygen Balance

The end of our production of novel chemicals is not in sight. No more than a minute fraction of these substances, singly or in combination, has been tested for toxicity to the marine diatoms that produce some seventy per cent of the earth's annual supply of oxygen. Nor have they been tested for toxicity to the equally vital forms involved in the cycles of nitrogen and other essential elements.

For the continental United States I have attempted some calculations of the oxygen balance. I took the figures for production and imports of fossil fuels for the year 1966, corrected these for exports and non-combustible residues, and calculated the amount of oxygen that would be required for their combustion. Then I made what I believe to be a good estimate of the amount of oxygen produced by photosynthesis within U.S. borders that year. The amount of oxygen produced turned out to be not quite sixty per cent of the amount consumed.

The implication is clear: we are absolutely dependent on oxygen which is produced outside U.S. borders—mostly in the Pacific Ocean and brought in by atmospheric circulation. If we should inadvertently kill enough marine diatoms or the organisms they depend on for fixed nitrogen, we would start running out of oxygen to breathe. Yet these organisms are now being exposed to our half-million chemicals. There is some evidence that the insecticide DDT can suppress photosynthesis in bodies of water, and this chemical has now become world-wide in distribution.

More frightening yet are the herbicides or "weed killers"—chemicals specifically designed to be poisonous to plants. The fate of Lake Erie and many lesser bodies of water has shown that man is capable of blocking the oxygen cycle through sheer carelessness.

Our Contaminated Air

Most textbooks describe the atmosphere as it would exist if it were free of contaminants. In our actual atmosphere, however, more than 3,000 foreign chemicals have been identified. The air of our cities is rich in solid matter such as soot, fly ash, particles of rubber from tyres and asbestos from brake linings—all of which have implications for public health.

Our smoke stacks and exhaust pipes pour forth carbon monoxide, sulphur dioxide and various oxides of nitrogen. These chemicals can affect health and, in the case of the sulphur and nitrogen oxides, they are capable of corroding metal and concrete.

In addition, ethyl gasoline causes our automobiles to release so much lead to the atmosphere that snow near the North Pole contains 300 per cent more lead than it did in 1940. And, to increase agricultural output, we have processed phosphate rock into fertiliser, releasing as a by-product poisonous fluorine which ironically sometimes kills vegetation and livestock in the vicinity of the fertiliser plants. Ironically also, our laundry detergents are compounds of phosphorous, and we are discarding this precious element so recklessly that it has become one of our most significant water pollutants.

What about our ever-increasing use of fossil fuels? We are burning them at a rate which is putting carbon dioxide into the atmosphere more rapidly than the oceans can assimilate it. Carbon dioxide is quite transparent to solar radiation but quite opaque to the longwave heat radiation from earth to space. In other words, it acts as a heat trap which has the potential for altering the earth's climates. The precise form that such changes might take are still very controversial and uncertain.

People are grasping at straws for ways to keep our economy growing. We are told that bacteria, fungi and yeasts will convert fossil fuels directly into food for man. Not only are the fossil fuels exhaustible, but, unfortunately, this proposed new type of food production will not generate any oxygen.

The Problem of Radioactivity

We are told that nuclear energy will provide the answer to air pollution. This may be the cruelest hoax of all. Before the controlled release of atomic energy, the total amount of radioactivity under human control consisted of about ten curies, in the form of about ten grams of radium divided among the world's hospitals and laboratories.

Great concern and publicity arose whenever a few millicuries were lost or misplaced. Those who can recall this concern will not take lightly the news that a nuclear power plant now being constructed on the shores of Lake Ontario near Oswego, New York, will by the company's own estimate, release 130 curies per day into the atmosphere. And this plant is actually to be a small one in terms of present dreams.

Present-day reactors produce prodigious quantities of extremely hazardous and long-lived radioisotopes such as Strontium 30 and Cesium 137 which, everyone agrees, should be stored for at least six hundred years before being released into the environment. Yet the Atomic Energy Commission found that about five per cent of the underground storage tanks were leaking after only about twenty years.

In all of the foregoing instances of pollution the fundamental problem as I see it, is our fetish for equating growth with progress. Economists state that companies must grow to survive. We take pride in a gross national product growing at between four and five per cent per year, and we try to ignore the fact that our per capita production of trash is growing at about the same rate.

We are told that our electrical generating capacity must increase by ten per cent per year, but we forget that all of that energy must eventually be imposed on the environment as heat. I don't believe that there is any way short of repealing the laws of thermodynamics to sustain such growth without bringing disaster to our environment.

Population and Pollution

In a related field, growing populations are viewed by many planners simply as expanding markets—and here we come to a fundamental problem. There must be *some* level of human population that the earth could support indefinitely without undergoing deterioration, but we don't know what that level is.

Through the first million or so years of man's existence, his population probably doubled no more often than once in every 50,000 years. During the summer of 1968 the human population passed the 3.5 billion mark, and, if present trends should continue, this population would double again every 35 years!

There is no possibility that the earth's environment can long sustain such pressure; in fact I consider it very improbable that the earth could continually support, on a non-destructive basis, a population as large as the *present* one. We shall have to decide, and soon, what quality of life we want for ourselves and our children, and what steps in pollution and population control are necessary to get it.

Unfortunately, our big decisions are made on economic grounds. Factories burning fossil fuels don't *have* to release particulates and sulphur and nitrogen oxides into the atmosphere; nor do nuclear plants, barring accidents, *have* to release radioisotopes into the environment. They do these things because it would cost money not to.

Pollution by automobiles could surely be controlled at some expense and perhaps with some loss of performance. There are valuable raw materials in discarded automobile bodies; if economics made the mining of fresh ore as expensive as reclaiming used metals, our auto graveyards would vanish.

Throw-away glass bottles are the thing today, and federal law even prohibits the re-use of liquor bottles—thereby adding to the burden of trash. Even tin cans could have salvage value, as they did for a while during the tin shortage of World War II. The organic matter in garbage and sewage could be converted to fertilisers, but not at present competitive costs. Other wastes could be burned in smokeless incinerators and the heat could be made to do useful work, as is being done on a small scale in Europe.

Who Should Pay?

Influencing all the foregoing choices which we might make is the question: *Who should pay for pollution?* Our system now allows the public utility, the manufacturer, the chemical company and the incinerating firm to dump pollutants into the air at little or no cost. Other people pay the bill: the city government which must repair its roads and bridges and replace its trees far too often, and the emphysema sufferer who must frequent a doctor's office.

If the bills for pollution were handed back to the sources of pollution, we might see some surprising improvements in the quality of our air. But such a system of social accounting, I hasten to point out, involves political and ethical decisions rather than purely technological ones.

Meanwhile, we are on a collision course with disaster. It is encouraging to know that we already have, or can develop, the technology to reverse our course. But it is disturbing to realise that we have not yet applied this technology in an effective way. We know how to regulate population size and how to do it economically. We could control pollution and even do a great deal to clean up our filthy and deteriorating environment—provided, of course, that we have not already made disaster inevitable by dooming some species on which the continuation of life depends or by burdening ourselves with a load of defective genes that will make future human generations inviable.

Surely, man faces no more urgent problem than the need to save this environment. What will be required is intense collaboration by the best minds among biologists, physical scientists, sociologists, economists, political scientists, and policy makers. In the United States, as well as elsewhere, many of these people are beginning to recognise and deal with the critical problems of survival. We can only hope that enough time is left for them to do their work.

WHAT IS ECOLOGY?

WILLIAM BOWEN

An unfamiliar word, standing for an obscure science, has suddenly thrust itself into the flood of current discussion of environmental problems. The following article offers a concise introduction to the meaning of the word and the implications of the science. William Bowen, Assistant Managing Editor of "Fortune" magazine, is a serious though non-professional student of nature and the biological sciences. His article is taken from a special issue of "Fortune", "The Environment: A National Mission for the Seventies," which will soon be published by Harper & Row, Publishers, Inc.

AS RECENTLY as 1962 the naturalist Marston Bates wrote:

> "Ecology may well be the most important of the sciences from the viewpoint of long-term human survival, but it is among those least understood by the general public..."

Even a year or two ago, anyone not a biologist or a biology student could easily go for months on end without encountering any mention of ecology.

But now we meet ecology—the word, at least, if not the science—at dinner parties, in newspaper editorials, on the covers of magazines, in speeches by public officials, at gatherings of scholars in fields remote from biology, and in the names of recently born or reborn corporations (Ecological Science Corp., Ecologic Resources Corp., Ecology Inc.).

There is an element of fad, of course, in this swift transformation of a mossy scientific term into a conspicuous "In" word. But there appears to be something much more important, too: awakened perception by a great many people of an urgent, practical need for the kinds of information, insights, and concepts embraced in ecology.

The term ecology was coined a

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hundred years ago by the German biologist Ernst Haeckel. The eco-, from the Greek *oikos* (house), is the same eco- as in economics, and according to an old definition what ecologists study is "the economy of animals and plants." In the now-standard definition, ecology is the science of the relations between organisms and their environment.

That will do as a working definition if we bear in mind that neither in nature nor in the thinking of ecologists are there two distinct compartments, organisms and environment. For any organism, other organisms constitute part of the environment. And the physical environment itself is largely created and maintained by organisms. Atmospheric oxygen, necessary to the survival of life on earth, is itself a product of life, accumulated from the transpiration of aquatic organisms and terrestrial plants.

A hardwood forest can maintain its stability for many centuries on end because it creates its own peculiar environment, in which seedlings of only certain plant species can grow to maturity. Recognising that organisms and their physical environment are interacting parts of a system, an ecologist uses the term "ecosystem" to mean the community of living things and the physical environment, both together, in the segment of nature he is studying.

Ecologists study all kinds of segments, great and small. One ecologist may investigate how various species of mites coexist in the pine-needle litter on a forest floor by occupying separate "niches", or ways of making a living. (It is a well-established principle of ecology that only one species can occupy a particular niche in any habitat.) Another ecologist may work out the intermeshed food chains of various species in a pond or a forest. Still another, a worker in the sprawling, almost unbounded field called "human ecology," may trace the paths by which radioactive substances and persistent pesticides, created by our interventions in nature, accumulate in the tissues of our bodies.

The Great Web

In the diverse studies of ecologists, certain basic themes keep recurring. Together they may be regarded as the compressed wisdom of ecology.

Interdependence. "The first law of ecology," biologist Barry Commoner remarked not long ago, "is that everything is related to everything else." The continued functioning of any organism depends upon interlinked functionings of many other organisms.

Seemingly autonomous man ultimately depends upon photosynthesis for his food. The seemingly autonomous oak in the forest depends upon microscopic organisms to break down fallen leaves, releasing nutrients that can be absorbed by its roots.

Interrelations between organisms are often intricate, and some obscure species provide vital linkages not at all apparent to the casual observer. The seeds of the bitterbush, an important food plant for browsing animals in arid sections of Africa, fail to germinate unless several seeds are buried close together below the surface of the soil; that happens in nature only through the intervention of a species of ground squirrel, which buries hoards of seeds and often forgets them.

It is unwise for men ever to decide without very close study that any species is entirely dispensable.

Limitation. The saying that trees do not grow to the sky expresses another basic theme of ecology. Nothing ever grows indefinitely—no organism, no species. Much more commonly than non-ecologists might suppose, animal species limit their own growth: rates of reproduction respond to crowding or other signals so that total numbers remain commensurate with the resources of the ecosystem.

In the over-all ecosystem of the earth, total animal energy is limited by the amount of solar energy available in the organic compounds of plants. Since combustion consumes oxygen, the amount of combustion the earth can sustain is limited—other limiting factors aside—by the ecosystem's net production of free oxygen.

Complexity. When he looks closely at any ecosystem, the ecologist invariably comes upon complexity, an intricate web of interrelations. A diagram showing the movement of a single chemical element through an ecosystem can get exceedingly complicated. In the ecosystem of man, which includes institutions and artifacts that themselves impinge upon and alter the environment, the interrelations are unimaginably complex. This great web, an ecologist said, "is not only more complex than we think. It is more complex than we *can* think."

Unexpected Consequences

In ecosystems as in social systems, causes and effects are often widely separated in both time and space. Accordingly, our interventions often yield unexpected consequences.

After years of spraying persistent pesticides to kill insects, we find that we have come close to wiping out a national symbol, the bald eagle. Concentrated through food chains, pesticides accumulate in the tissues of eagles and certain other birds to the point of impairing reproduction. We drain Florida swamplands and learn later on that by reducing the outflow of fresh water into estuaries we have increased their salinity and thereby damaged valuable breeding environments for fish and shrimp.

Egypt's Aswan Dam impounds silt that would otherwise be carried downstream, so the Nile no longer performs, as richly as before, its ancient function of renewing fields along its banks. The fertility of the Nile Valley is therefore declining.

That is only one variety of ecological backlash from this triumph of engineering. With the flow of the river reduced, salt water is backing into the Nile delta, harming farmlands there. And in time, some authorities predict, the flow of Nile water to new farmlands through irrigation canals will bring on a calamitous spread of schistosomiasis, a liver disease produced by parasites that spend part of their life cycle in the bodies of snails.

Garrett Hardin of the University of California pithily expressed the principal lesson of all this in pointing out that "we can never do merely one thing." When we intervene in a complex system so as to produce a certain desired effect, we always get in addition some other effect or effects, usually not desired. As Professor Hardin also said: "Systems analysis points out in the clearest way the virtual irrelevance of good intentions in determining the consequences of altering a system."

Ecologists are accustomed to looking at nature as a system, and if we had paid more attention to them we might have been spared a lot of backlash. In trying to reduce insect damage to crops, for example, we might have made more use of specific biological or biochemical means of control and less use of persistent broad-spectrum insecticides. We might now, accordingly, have more birds in our countryside and less DDT in our streams—and in some places, fewer harmful insects in our fields.

The Dangers of Simplification

The recurrent themes of ecology run counter to some old ways of perceiving and thinking that are deeply ingrained in the prevalent world-view of Western man. We believe in limitless growth (or did until recently); ecology tells us all growth is limited. We speak (or spoke until recently) of man's "conquest" of nature; ecology tells us we are dependent for our well-being and even survival upon systems in which nature obeys not our rules but its own.

Our scientists and engineers, and our social scientists too, proceed by isolating and simplifying; ecology tells us to heed existent complexity and patiently try to trace out its strands. In a sense, then, ecology is subversive. The ecologist Paul B. Sears, a few years ago, called it "a subversive subject," and the editors of a recent compilation of essays on the ecology of man entitled their book *The Subversive Science.*

In the recent popularity of the word "ecology," therefore, we may be witnessing the sign of a momentous historical change. Alterations in the ways men perceive and think about reality lead to alterations in the goals and modes of action.

It is too early to tell whether an enduring shift to ecological ways of perceiving and thinking is now in progress, but if it is, the effects will surely be beneficial, on balance. Ecology can help us cope with the environmental ills that beset us, if only by enabling us to avoid bringing on new unintended consequences in trying to remedy old unintended consequences.

Less obviously, ecological thinking can help us cope with the social ills that also insistently press upon us. The social sciences are proving to be inadequate as guides to policy, and the inadequacy is inherent in the prevalent methods and mind sets of social scientists.

In general, they have aped the successful methodology of the physical sciences, but in the study of complex social systems, simplification too readily slides into oversimplification. The social sciences would benefit greatly—and so would we all—by borrowing from the ecologists their willingness to accept and try to puzzle out complexity and their habit of sustained, open-eyed observation of what actually goes on.

THE STATE OF OUR IGNORANCE

RENE DUBOS

We cannot expect rapid, comprehensive solutions to our environmental problems, says Dr. Dubos, Professor of Pathology and Microbiology at the Rockefeller University in New York City. We know too little about the composition and interrelationships of the materials that surround us, too little about their effects on the human mind and body. So he urges the establishment of interdisciplinary research institutions to study pressing social problems.

Dr. Dubos has done pioneering work in the fields of antibiotics and the effects of early environmental influences. His books include "Pasteur and Modern Science," "Man, Medicine and Environment," and "So Human An Animal," which received the Pulitzer Prize in 1969. The following article, reprinted from "Psychology Today" (March 1970), has been adapted from a paper delivered in July 1969 at a symposium of the Argonne Universities Association.

THE PHRASE "social problems" is ambiguous. It refers to difficult situations experienced by many members of a given society at a given time. But it is often also used to convey the view that these situations can be solved by economic and social measures. My thesis is that many important social problems cannot be solved by such measures today because we lack the scientific and technological knowledge on which to base effective social action.

Statesmen, social planners and technologists often say that financial cost is the major obstacle to air pollution control. But, in fact, even if we had limitless resources we could not formulate really effective control programmes because we know so little about the origin, nature and effects of most air pollutants.

Soot, dust and pollen were regarded for a long time as the most important factors of air pollution. Then emphasis shifted to carbon monoxide and sulphur

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dioxide. A few years ago the Los Angeles smog drew attention to nitrogen oxides and photo-oxidants—and the automobile's internal-combustion engine became the chief villain.

But important as all these agents are, they account for only a few aspects of air pollution—perhaps not the most dangerous. For example, asbestos particles originating largely from the brake linings of motor cars and from insulation material used in construction have been detected in significant amounts in the pulmonary alveoli of urban dwellers —and there is no doubt that asbestos is a great health hazard. Several carcinogens have been detected in urban air.

Most important, and generally overlooked, is the disturbing fact that some seventy per cent of the particulate contaminants in urban air are still unidentified. Their biological effects are unknown. But recent experiments have shown that newborn animals exposed to these undefined contaminants may show disastrous consequences when they become adults.

Identifying the Causes

In view of this ignorance, controlling emission of soot, carbon monoxide or sulphur dioxide probably would not go far toward controlling air pollution. Nor would changing from internal-combustion to electric automobiles diminish either the release of asbestos from brake linings or the production of the immense amount of colloidal stuff generated by tyres grinding on pavement.

Any control measure is of course useful, however limited. But a rational control policy will not be possible until we have made a systematic chemical survey of air contaminants and have determined their effects on human beings and on ecological systems. No one really knows at present which of the air pollutants are most dangerous and where priority should be placed in control measures.

Ignorance is even greater with regard to water pollution. We have learned from the nineteenth century sanitarians how to detect and, in some measure, to control the contamination of water by bacterial pathogens and gross organic matter. But water pollution is now chiefly chemical in nature and is made up of an immense variety of mineral and synthetic substances.

Just as clear water often contained typhoid bacilli in the nineteenth century, so the clear water in most of our city reservoirs now contains a host of chemical substances, largely unidentified, that may be deleterious to health. Recent discoveries suggest that the mineral composition of water affects mortality from heart disease, and it would not be surprising to learn that other chemical contaminants of water have undesirable biological effects. In fact, there are indications that nitrates have reached a toxic level in certain parts of North America.

The disposal of solid wastes constitutes another social problem for which meaningful programmes cannot be formulated until new kinds of knowledge have been developed by the natural sciences. Physicists, chemists and biologists must develop entirely new methods for recycling the products of technology and agriculture.

As a biologist, I am convinced that it is no longer possible or permissible to incinerate all organic wastes, to dump them into water or to use them as land fill. Yet we do not know how to recycle them on a large scale. Indeed, we have hardly progressed beyond the empirical techniques of composting that have been used from time immemorial by gardeners and farmers.

I could list a host of other social problems for which there is no possibility of solution until more knowledge is provided by the natural sciences. Crowding and architectural design and urban and rural planning based on ecological concepts need intensive study. Another problem is air conditioning and its effects on biologic rhythms.

There is overwhelming evidence that man is geared through his evolutionary past to the cosmic cycles and that air conditioning upsets some of these cycles. A vast amount of technical and biological study is needed to make air conditioning more compatible with those biological demands encoded in man's genetic apparatus.

The Effect of Early Influences

Excess sensory stimuli and sensory deprivation are two more of the countless aspects of the technological environment that must be studied if we really want to integrate science into human life. I single out for emphasis one item of paramount importance, because it bears on all aspects of social and technological planning—the lasting effects of early influences.

All environmental influences have their deepest and most lasting effects when they act on the organism during the early, formative phases of its development; the first six years of life seem to be especially critical for human beings. It is not an overstatement to say that in human beings the first four years of life —and, for that matter, prenatal life— are of such critical importance that if the environment at that time is not just right the organism suffers some kind of handicap from which it will never recover. In the light of this fact, the worst effects of environmental pollution are probably yet to come, since it is only during recent decades that certain chemical pollutants have reached high levels almost everywhere and that children have been exposed to these pollutants almost constantly from birth.

Findings from studies made recently at two medical schools in England, one in London and one in Birmingham, indicate that from the age of two or three, children raised under conditions of high pollution begin to show evidence of permanent malfunction. Clearly those children are not going to die. What will happen is that in twenty or thirty years, as a result of that slow, chronic response to environmental insult, these children will certainly suffer from some form of chronic disorder. Chronic pulmonary disease is at present the largest cause of disability and death in England, and it is increasing in the United States at an alarming rate—to such an extent that I believe it will be one of the biggest medical problems within ten years. We can and must develop knowledge of environmental effects on very young children.

We know little about the effects of these early influences. We must, therefore, develop a new kind of knowledge to understand and, one hopes, predict the bad effects—and the desirable ones—that the technological environment exerts on the expression of biological and mental potentialities. It is not surprising that we know so little about the long-range effects of social and technological innovations. But it is shocking that so very little is being done to develop those aspects of the natural sciences that could contribute to a more rational utilisation of our technological prowess.

Integrated Approach

One can expect that the clamour for more social relevance in academic studies will bring about a shift in the areas of research selected for emphasis by theoretical scientists. But it is unlikely that the effort devoted by universities to the scientific aspect of social issues will be sufficiently large and well-enough focused to affect significantly the course of events. Universities were not organised to deal effectively with urgent social problems.

Moreover, they should not try to reorganise themselves toward this end. This would jeopardise their traditional and most important tasks—the acquisition and transmission of timeless knowledge. In the words of Dr. Alvin M. Weinberg, "As the disciplines making up the university become more complex and elaborate in response to their own internal logic, the discrepancy between the university and society grows."

The study of most social problems requires a complex integrated approach not readily achieved within a university because the academic structure is primarily discipline-oriented. Professional associations—technological, medical and social—have long realised that it is difficult to study their problems within the academic system. For this reason, many of them have established their own research programmes outside the universities, and so, of course, have all major industrial enterprises.

Much socially oriented science will have to be carried out in the future by task forces made up of assorted scientists who have different skills and are selected for their potential contributions to unsolved problems. Temporary project groups rather than permanent stratified units will characterise socially oriented science.

This does not mean that academic scientists must remain aloof from social issues. The most urgent role of the university is to sensitise students to the fact that their social concern will be wasted if it is not based on scientific, technological knowledge. The university should learn to glamourise the social aspects of the natural sciences and to stop treating students who want to concern themselves with social problems as second-class citizens or second-class scientists.

The Complexity of Social Problems

Another responsibility of the universities would be to convey to students that these problems are messy at the beginning. Let me give an example.

About four years ago President Detlev Bronk of Rockefeller University asked me to participate in a programme to try to convey to scientists and students the importance of refocusing part of our scientific activity to social problems. One of the students remarked to me that he was impressed by what I said and that he had social concerns, but that two years before he had decided what kind of specific scientific activity he would engage in. At that time he was taking a Ph.D. in the structure of nucleic acid. He said the problems I spoke of were interesting socially, but they were not beautiful scientifically; they were not clean scientifically.

I pointed out to him that I had lived long enough to know the whole history of the development of knowledge concerning nucleic acid. Several decades ago I had the opportunity to watch at close range the pioneering but primitive chemistry carried out on nucleic acids derived from yeast and from fish sperm. The techniques were clumsy and crude; no graduate student today would want to deal with such a messy topic. So I told that student that what he did not realise was that his work on the wonderful materials available today was possible because, for the past thirty years or more, people have been cleaning up the mess for him so that he could have the enjoyment of working with pure substances and well-defined systems.

Another role of the university is to teach students the art of dealing with complex, multifactorial problems; some well-defined and some much less well-defined, but all essential for dealing with social problems.

Recently I proposed to a group of students, "If you are really as interested in social problems as you say you are, do not think that you can satisfy your conscience by hiring a lecturer to come and talk for forty minutes to you about the problems. Do not think that by doing this you have really been involved in thermal pollution or pesticides or any other problems.

"If you really are serious you might organise yourselves into seminar groups in which you would discuss a specific problem. Let us take thermal pollution: those trained in physics would present the physical aspects of this problem; those trained in ecology would present the ecological aspects; those trained in economics would present the economic aspects. Continue that seminar for weeks upon weeks, so that you become aware of the complexity of these problems.

"You will come to recognise that social problems involve many factors, some well-defined and some unclear. You will learn to recognise the problems that demand further definition, and you might learn to refocus scientific studies so that obscure aspects of social problems become better understood." At first the idea was not well-accepted, but I believe it is now bearing fruit.

New Kinds of Scientific Institutions

All this conditioning of the student must be done within the universities, but it is not being done very effectively. New social problems cause the emergence of new kinds of scientific institutions. A century ago, agricultural-experiment stations were established in each state to provide a scientific basis for practical agriculture. They rapidly evolved into sophisticated centres of learning .that contributed to many fields of theoretical knowledge. I spent my first three years in this country working in an agricultural-experiment station. I remember how the members of the university downtown used to disparage the "cow college," as we were called, and the level of our intellectual preoccupation.

What impresses me is that once a social commitment has been made to a practical problem like the improvement of agriculture, immediately all sorts of talent emerges and makes that subject scientifically respectable. The school of aeronautics at California Institute of Technology and the institutes of communication theory of the Bell Telephone Company and of IBM are among the many scientific institutes that have been created all over the world to meet social demands not adequately answered by universities.

The environmental problems of our society cannot be solved by the detached intellectual approach that prevails—and should continue to prevail—in universities. Social progress cannot possibly be based on the safe criteria that govern the mass production of the orthodox, uncommitted, bland Ph.D. theses that make the bulk of university research and remain unread on library shelves. The environmental problems of our societies will not be studied for what they really are—a threat to our survival—until a commitment to their solution is symbolised by the creation of special research institutes.

A course of action for the current ecologic crisis may be derived from what happened one century ago when Europe and the United States experienced the environmental disasters caused by the first phase of the industrial revolution. At that time the appalling conditions in most urban industrial areas stimulated enlightened and dedicated citizens to launch a vigorous campaign of social reforms. Public-health laboratories and boards of health were organised to formulate and enforce sanitary regulations, often against the resistance of vested interests.

It soon became apparent, however, that even the best-meaning and most enterprising social reformers could not be very effective because they lacked the kind of technical information that only the natural sciences could provide. As a result, new kinds of research institutes were created to study the epidemic and nutritional disease that constituted the most pressing environmental problems of the late nineteenth century.

Neither medical schools nor universities were then geared for the scientific study of these conditions. The first institutes devoted to medical research emerged outside and independent of the academic establishment. Their list is long, from the Pasteur Institute in Paris and the Koch Institute in Berlin to the Rockefeller Institute in New York City and the Institute of Nutrition for Central America and Panama in Guatemala City.

These remarkable and highly productive institutions were founded and nurtured by private and political bodies to deal with unanswered social demands. It took years—even decades—before the new scientific problems generated in their mission-oriented laboratories were recognised by universities as legitimate areas of academic research.

The Quality of Life

There is much reason to believe that public pressure will soon place social (especially environmental) problems at the forefront of the scientific enterprise. Since the existing knowledge of the natural sciences is not sufficient to permit the development of effective action programmes, we can only hope that new types of research institutions will be created to acquire knowledge directly relevant to urgent social issues.

Although mission-oriented institutions will have to be concerned with practical problems, they will contribute to theoretical knowledge because they will have to open new and neglected areas of inquiry. The history of science proves that any effort to deal with practical problems inevitably points to new theoretical problems, just as the study of infection enriched cellular and molecular biology and the search for better strains of corn opened new fields of genetics.

The interplay between theoretical science and practical applications has constituted one of the most influential factors in the development of science. The study of ecological problems in technological societies will soon generate new, exciting knowledge of man and his environment.

Man is not on his way to extinction. He can adapt to almost anything. I am sure that we can adapt to the dirt, pollution and noise of New York City or Sao Paulo or Calcutta. That is the real tragedy—we *can* adapt to it. As we become adapted we accept worse and worse conditions without realising that a child born and raised in this environment has no chance of developing his total physical and mental potential.

It is essential that we commit ourselves to such problems as societies and as nations, not because we are threatened with extinction, but because, if we do not understand what the environment is doing to us, something perhaps worse than extinction will take place—a progressive degradation of the quality of human life.

CONFRONTATION IN THE EVERGLADES

PHILIP WYLIE

Early in 1970 the federal government decided to withhold funds for a jet airport adjoining Florida's Everglades Park. The unusual action reflected the awakening national concern about threats to man's environment. Mr. Wylie, novelist, short story writer, social critic and ardent conservationist, applauded the action and explained his reasons in the following article, reprinted from "The New York Times."

IT SEEMED the only logical, sensible course of action. Thirty-nine square miles were purchased in central South Florida, $13-million was spent, a landing strip for training flights was constructed. Florida desperately, obviously, needed a new jetport. The site beside Everglades National Park was eminently reasonable—within swift reach of the booming cities on both coasts, once automobile expressways were constructed.

Yet it is not to be. The startling fact, rumoured here for weeks, was confirmed by President Nixon in mid-January: No federal funds would be granted for a jetport in the Everglades. The port, with its satellite industries and residential developments, would have to be built elsewhere.

And all to save an apparent wasteland—a super-swamp, an endless sea of shallow-water sawgrass—from the pollution of jet sound and jet contrails, from the attendant sewage and industrial waste. All to save a 1.4-million-acre mega-bog, an infinite nothing where those tourists who are forced to stop for a tyre change get out of their cars in wary dread. For the Everglades is known to abound in horrors, in alligators, poisonous snakes, clouds of mosquitoes and huge, biting flies.

Natural assets and wildlife preserves have been rescued before, just before the bulldozers moved in; but what was new here was the magnitude of the work already done, the money spent, the solid

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expectations suddenly rejected. What was novel was that the Nixon administration had acted against tremendous commercial investment and popular demand and need—in the face of the jetport, with its hotels and supermarkets and other cultural artifacts which would attract the whole world of air travellers and become fifty or five hundred times as great a source of profits and taxes as the million or so tourists who now visit the Everglades each year.

What was portentous was the precedent. Had an example been set? Would the conservationists, the champions of ecology, outnumbered by perhaps 100 to one, slandered for years as "fanatics who care more for birds than for people"—would these enemies of progress gain the upper hand?

A Tentative Victory

The victory, of course, is not total. The existing landing strip will be used for training flights until a new site is found. The ecological effect of such flights is unforeseeable. Yet, for those who have fought the jetport, the President's announcement is a start, and more than a start—for the men and women who were fascinated by the incredible birdlife in the Glades, for others interested in conserving game to shoot at; for those who hoped simply to preserve swatches of wilderness for the eyes of posterity and those who understood the unique ecology of South Florida's Glades but find it difficult to communicate their knowledge to anybody else.

One logical argument which the jetport opponents had been able to summon up was easily expressed. The aquifer from which the urban sprawl of coastal cities draws water might have been polluted by the development. These many-trillion-gallon stores of ground water lie only 100 feet below the porous rock of South Florida. Already, that natural storage cistern had been diminished by saltwater incursions from the east and west, caused by activities such as canal digging and drilling. On the other side, it was pointed out that, even if the ground waters became contaminated, there was an alternate supply to the north. Yet the threat to a vital water source was not easily talked away.

But all such arguments, and the alarums of bird lovers and hunters alike, might have gone for naught without the fast-growing American opposition to environmental pollution in general. It has made ecology big today. It has been said that every Congressman has become an ecologist overnight, though few could have defined the word a year ago. Now, it has political weight, even though Congressman and layman alike often find the conception—the relationship of life forms to their environment—beyond their perception.

The Everglades: Forests and Waterways

The Everglades are, ecologically, unique on the planet and extremely complex. A glance at a map of Florida will show why. It is a long peninsula whose entire southern third is called "Everglades." This vast wetland is, in fact, three kinds of swamp.

The northmost begins at Lake Okeechobee, a shallow body of tepid fresh water more than 700 square miles in area. The lake is (or was) the "head" of the Everglades supply of slow-flowing water, aptly called a "river of grass" by author Marjorie Stoneman Douglas. This first segment of the Glades is the Big Cypress Swamp, though all the big trees save a sample owned by the Audubon Society have been cut and most of the cypress were always stunted and small, though often very old.

Next comes the sawgrass region, the swamp that gave its name to the whole, an interminable prairie of brownish "grass" standing in shoal water, as a rule, and broken only by jungle domes called hammocks. The sawgrass is not grass but an abrasive sedge, and a man trying to bull through it would soon be stripped of clothing and then of skin.

The third swamp is a mangrove forest, the largest on earth, where labyrinthine waterways twist and branch and open into secret lakes. Mangrove is literally impassable for any distance, as its tentacle-like roots and stiff, entwined branches stand in slow-moving water that becomes brackish, then salty and, finally, the sea.

All three swamps compose the Everglades which occupies the whole peninsula from edge to edge. It is a swamp of more than 5,000 square miles soaked by a river that is the world's slowest, shallowest and, since man has tinkered with it, perhaps the least dependable.

Nothing anywhere on earth is even physically similar. Southern Florida is like a very slightly tilted cookie tray with low, coastal edges where dunes and outcrops of oolite—a soft, limey rock full of fossil shells—are elevated enough for building. The hammocks that interrupt the sawgrass are caused by such oolite emergences. Some are miles long, others the size of a carousel, and they support trees of many sorts, including West Indian species and most of what is left of the once-abundant mahoganies.

It is possible, of course, to build in the Glades. Many developments already encroach on them. The vast wasteland could be turned into a megalopolis with modern machinery. Excavating fill for building sites would merely leave large stretches of water canals and lakes, an effect that could rival Venice and be huge enough for ten million inhabitants, or more. And if the Everglades were to vanish beneath an aquatic super-city, humanity could exist without missing a thing, save for a few lowly creatures.

Why Halt Progress

Why guard such a region from so rich a potential, especially when the coastal strips are already solid walls of cement and the pressure of local population is desperate? Why halt progress, especially when progress has already played havoc with the wet wilderness and may yet destroy it, the national park included?

The Army Corps of Engineers has constructed enormous "water conservation" areas to the north—diked megaponds intended to prevent flooding and to store the rainy season's deluge for urban and agricultural use. Those "conservation areas" have, so far, failed to supply the park with sufficient water in dry periods to sustain its flora and fauna. They nearly killed the park in a recent drought. Loss of a national park would have been a "first" both for the engineers and for the citizens of the United States. Lucky rains supervened.

The mucklands south of Okeechobee sustain sugar cane and winter vegetable enterprises. They are another hazard. The first farmers to see black, friable soil thought it as fertile as the dark earth of the Midwestern prairies. It wasn't. Pure humus, leached of minerals, it requires heavy fertilisation, and, as it is kept dry by ditching and canals, it oxidises—literally burns up and blows away—so the drainage systems must be deepened constantly until bedrock is reached, in a decade or two. As the digging deepens, salt water intrudes from the surrounding seas. Salt water also intrudes wherever canals have been excavated. So South Florida, like Southern California, may eventually have to get its water from upstate.

Water conservation by immense impoundments to the north has also resulted in periods of diminished brackishness in the park and the mangrove expanses. Many fish and various crustacea depend on freshwater dilution for breeding. Drought halts the fresh mix, and breeding suffers. But commercial fisheries can fail, and have failed without great public loss, and some sports fish breed elsewhere.

Cornucopia of Living Wonders

So there is nothing indispensable about the Everglades. The long struggle to make a national park here was opposed by multitudes on general principles. They could not think of any commercial value for the Glades, but it was land and so should be open to private purchase.

It was not very effective to point out that thousands of ecological niches existed in the vastness—places where plants of a single species grew, and only there—or that many life forms were present but as yet unknown to science and that the wild scene was beyond imagining—the egrets and ibises, ducks of every sort, water turkeys and real turkeys, panthers, foxes of a special breed, herons and gallinules, deer, bear, otters and endless sorts of flowers, orchids, air plants, poisonous trees and snakes.

It was almost useless to assert that this cornucopia of living wonders, if preserved, might someday supply the natural source of new and priceless drugs, for one example of the sane and possible. Such a not-too-far-out suggestion would be derided by drug manufacturers, who would assert that every natural drug from quinine to penicillin had been synthesised, a rebuttal that overlooks the fact that these miracle remedies were first found in nature.

You could lead a supposedly informed citizen into the Audubon Society's Corkscrew Swamp and show him native hibiscus in bloom and stands of cypress bigger around than a dining table, and you could spend as much time as he would allow pointing out the rare, the gorgeous, the irreplaceable, and the possibilities for all men in these, but his reaction would be: So what?

Trees are lumber, and a quagmire is a stinking breeder of pests. Prairies are to plough, rivers are for sewage and waste disposal, lakes are for dumping and transport and boating fun, scenery that lies over ore or petroleum deposits is to be removed or drowned in guck, and all swamps, of course, are for draining. This is land improvement and, unfortunately, even those who oppose it usually do so for superficial reasons—to watch birds, or hunt them.

The Everglades do not make a vital contribution to man's essential environment. The tremendous swamp is only a minor sample of wild environs that must be preserved if man is to continue his existence. The anti-pollution motif perhaps tilted the scale against that jetport. And even as an anti-pollution ruling, it is poorly stated.

A Neglected Human Right

What man must see, what this Everglades effort visualises, is the essential human right to an environment free of pollution. Unless man gains that right, his pursuit of life, liberty and happiness will soon be impossible.

Most Americans are now urban dwellers and the great majority of them are ecological ignoramuses. They are wary when they step off paved surfaces, and they have no idea of the names of trees and wildflowers, let alone the animals, in the nearest wood. That state of mind bodes ill for the human future, for it is blank and even hostile toward the world on which man depends—the algae in the sea which he calls slime but which provide his breathable air; the flashing minnows, which mean a creek is viable.

And so man's chances are enhanced by that trifle, a clean breeze. Men want to banish the pollutants they can smell, hear, feel or detect by smarting nostrils. But who realises that, if all the sense-perceived contaminants were gone, the job would be about one per cent complete?

Man's great illusion continues. Nature cannot be conquered or controlled by man, as men believe, because man is not in charge of it and never will be. Who is in charge of wind and rain, of green plants and photosynthesis, of birds, insects, the seven seas? Nobody. Nature is in charge, exclusively and forever.

The Everglades offer a textbook illustration of a truth mankind has not yet begun to face: Nobody owns anything, and all anyone has is the use of his presumed possessions. That is the ecological law. It is true for communists as for capitalists, for disadvantaged peoples as for the affluent and industrial societies. And it is absolute.

We do not own the Everglades or any part of that strange land, even if we have a deed to it. We are allowed its use. All we do own is what our individual skins contain. To save them we must save whatever chains of life are essential to our own.

Will Man Survive?

The value of the federal decision against a jetport rests in the symbol of the act. If the symbol is understood, its worth will be immeasurable. For man is soon going to be compelled to forego countless multi-billion dollar opportunities and change countless other plans, not to gain a specific if obscure end of swamp salvage but for a greater though scarcely comprehensible reason.

If all the ecologists could pool all they know and add all the data from every science, they would be unable to say what life forms and life systems are essential for man's survival. We know too little about the intricate, living understructure supporting our species to risk losing any wild living form, weed or pest or predator, lest one break in the planetary, life-sustaining system be fatal.

There never was a guarantee by nature that man should survive for any particular time. But there are many points in the natural order of beings where a lost or broken system might result in an inexorable act of nature fatal to man.

There are thousands of similar niches and wild lands that may have an indispensable function for man. The problem is, we don't know them; it is the major, formidable, overwhelming problem in the whole business. We don't know. We would probably continue to live and thrive, to the extent we are thriving, if we paved over the Everglades. But the emphasis is on "probably."

CITIES AS MINES

JANE JACOBS

All societies have problems in disposing of waste. Crowded cities and advanced technology compound these problems by concentrating in a limited area huge amounts of garbage and sewage, along with the paper, metal, glass, chemical and gaseous debris of industrial products. So the author suggests that we regard these monumental accumulations of cities as mines from which human ingenuity can extract purer air, purer water, and useful as well as profitable recycled wastes.

In the following article, excerpted from "The Economy of Cities," she argues that new forms of waste disposal can contribute to economic development.*

Jane Jacobs is a lover and critic of cities and author of "The Death and Life of Great American Cities".

ALTHOUGH the cities of the United States are making little or no progress in coping with wastes, hints and clues to solutions do appear. What they portend, I think, is not waste "disposal," but waste recycling.

Odd little news items about wastes crop up. *The New York Times* describes an apparatus produced by a Japanese manufacturer that bales assorted trash and garbage, compacts it under hydraulic pressure, and encases the resulting dense, solid block in asphalt, cement, vinyl or iron sheeting, depending on what is wanted. Bacteria are killed in the process. The blocks can be made in almost any shape desired for use in building. Those sheathed in metal can be welded together.

According to the company's American representative, who was interviewed by the *Times*, the process—apart from the usefulness of its product—is 50 to 75 per cent cheaper than incineration. The largest machine the company produces can handle three thousand tons of waste

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**The Economy of Cities*, by Jane Jacobs, Random House, Inc.

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in 24 hours; the smallest, 150 tons in 24 hours. The same company produces an older apparatus for pressing stripped automobile bodies into solid, small blocks for economical handling as scrap.

A manufacturer in Washington, D.C., advertises a device to be installed in buildings in place of a garbage incinerator. It reduces the bulk of garbage and trash by about 75 per cent for purposes of collecting it easily and economically. The containers filled with compacted garbage are supposed to be removed by a trash-collecting contractor, and empties left in their place. This of course is not, in itself, a method of recycling waste, but it hints at the sort of auxiliary systems that will be needed for getting some wastes from their places of production to points of processing.

Here and there, garbage is being processed into compost. The *New York Times* has described a little factory in Brooklyn, New York (run by the proprietor and a part-time helper) that converts restaurant garbage into lightweight, pulverised, dehydrated garden compost. The income from the sale of the compost is clear profit; the proprietor of the plant pays his costs by means of the silverware he retrieves from the garbage and sells back to the restaurants.

St. Petersburg, Florida, has a considerably more elaborate plant that handles unsorted garbage and trash. First the material goes through a magnetic separator to remove metal, which is sold as scrap. Then the rest of the material is ground up, soaked, digested (by bacteria), dried and screened to yield a compost that is inert—it has no nutritive value left—but is useful for soil conditioning, a job that chemical fertilisers cannot do.

It is a small plant, handling only a hundred tons of refuse a day Its products do not pay for its operation, but that is one of the most interesting things about it. The difference between its income from sales and its costs is paid by the municipality in the form of a fee of $3 (Rs. 22.80) per ton for disposing of the garbage and trash, an arrangement that the municipality finds economical. One glimpses how waste recycling can be made economically feasible even while it is still in a primitive and experimental state.

Conversion at the Source

The conventional approach to the problems of air pollution is to ban, or attempt to ban, fuels that contain high volumes of pollutants like sulphur dioxide. I suspect this is a futile effort. Of course it can reduce pollution from given smokestacks, but as the number of smokestacks increases, the pollution increases accordingly, even though higher-grade fuels are used. One is dealing with a problem by simply attempting to "subtract" it, an approach that seldom works.

A much more promising idea was described in a technical article in *Public Service Magazine* of September, 1964, by a vice-president of the Pennsylvania Electric Co. of Johnstown, Pennsylvania. He reported on a test made in one of that company's coal-burning plants to capture sulphur dioxide in the stacks and convert it to sulphuric acid, which of course is one of the most basic and heavily used chemicals in modern economies. In the test, 90 per cent of the sulphur dioxide was captured from ordinary, low-grade bituminous coal containing about a three-percent sulphur content. In a 24-hour day, this amounted to about 1,050 tons of sulphuric acid at a 70 per cent concentration, which at the time of the test had a delivered market price of $8 (Rs 60.80) to $10 (Rs 76) a ton. The cost of capturing and converting it was $7 (Rs 53.20) a ton. In effect, the process amounts to a new way of mining sulphur for sulphuric acid.

The same approach, in principle, has been used rather widely to capture particular air pollutants such as fly ash and soot, both of which are recycled. Fly ash is used to make cinder block. But there remains, I should think, enormous opportunity for capturing and recycling various gases which are not only dangerous in the air but also potentially valuable.

Recycling of Machinery

Of course a few waste-recycling industries are already very profitable. The machinery scavengers of Chicago have built up an economically valuable, world wide trade. Chicago has also been a centre for the remanufacturing of scrapped automobile parts. This too has interested the *New York Times,* which reports: "Formerly, remanufactured parts were put together in tiny garages on a hit-or-miss basis and the quality was suspect." That was the development stage of the work; now it is well established and has arrived at respectability.

The report goes on: "Now there are at least 1,000 remanufacturers of all sizes and the whole business has evolved into a large, efficient, mass-production operation. To the delivery docks of the companies come weekly thousands of used parts that are then disassembled, cleaned, reconditioned with new components, tested and shipped out to retail outlets.... Ninety-seven per cent of all starters replaced today are rebuilt starters; 81 per cent of replacement generators are rebuilt; 78 per cent of clutches; 77 per cent of carburetors; 66 per cent of brake components, and 62 per cent of water pumps." To indicate the savings to consumers, the report notes that a rebuilt four-barrelled carburetor costs approximately $ 35 (Rs 266) compared with $55 (Rs 418) for a new one.

One of the oldest forms of waste recycling is the reprocessing of waste paper. One producer of book paper advertises that its papers are more resistant to deterioration from humidity and temperature changes than paper made from new pulp, and accompanies these advertisements with striking photographs of New York City, which it calls its "concrete forests."

Inexhaustible Mines

This fancy, that the city is another kind of paper-yielding forest, is rather apt; but the metaphor of the waste-yielding mine may be more comprehensive. For in the highly developed economies of the future, it is probable that cities will become huge, rich and diverse mines of raw materials.

These mines will differ from any now to be found because they will become richer the more and the longer they are exploited. The law of diminishing returns applies to other mining operations: the richest veins, having been worked out, are gone forever. But in cities, the same materials will be retrieved over and over again. New veins, formerly overlooked, will be continually opened.

And much as our present wastes contain ingredients formerly lacking, so will the wastes of the advanced economies of the future yield up ingredients we do not now have.

The largest, more prosperous cities will be the richest, the most easily worked, and the most inexhaustible mines. Cities that take the lead in reclaiming their own wastes will have high rates of related development work; that is, many local firms will manufacture the necessary gathering and processing equipment and will export it to other cities and towns.

How will the mines be organised? First, it is useful to distinguish between two great classes of wastes: those that are carried by water, and all others. Leaving aside the waterborne for the moment, consider the fact that all other wastes must be collected from their points of production by people. This is true even of the wastes that now go into the air. It is impossible to "control" air pollution. That is to say, it is practical only to trap pollutants before they get into the air—to prevent air pollution. Such captured wastes, like the sulphuric acid at the electric plant, have to be collected by somebody, just as any other non-water-carried wastes must be, and sent on from their point of collection to processors or reusers.

The sulphuric acid produced at the electric plant illustrates what I think is the main difficulty in waste recycling but also the great opportunity to organise the new industries. The production of the sulphuric acid at the electric plant is not sufficiently large to interest the electric company itself in going into the business of stockpiling acid, finding various customers, and shipping it. Yet the acid is worth collecting; indeed, in this case, a chemical company contracted to pick it up at the electric plant and pay for it.

In large cities, the multitude of other fuel users who now float off sulphur dioxide into the air—hospital heating plants, factories, apartment houses—produce even less of it, taken individually, than an electric plant does, although in sum their production is enormous. They are not about to add thousands upon thousands of little chemical distributing businesses into the economy, out of their own chemical wastes.

Waste and the Single Household

In the same way, somebody who has old machinery to get rid of seldom finds it worth his while to hunt up a reuser of that particular apparatus. The job is better done by somebody who mines old machinery from many different factories. Even he may not be the one who finds the ultimate reuser; he may be a middleman collector who sorts what he collects and resells it to specialists who know the markets for various categories of secondhand machinery.

When waste recycling is at a primitive stage, as it is at the present, the collector of second-hand machinery,* the collector of waste paper, the collector of restaurant garbage all engage in feasible occupations, but not of the sort necessary if waste recycling is to develop much.

Picture so simple an establishment as a single household and its wastes. Imagine that one serviceman calls who is interested only in old metal, another who is interested in waste paper, another in garbage, another in discarded wood furniture, another in used-up plastics, another who wants old books (but only if their bindings have gilt letters; another serviceman is interested in the others), and so on.

A family would be driven crazy by this traffic, let alone by the necessity of separating and storing for various intervals the various wastes. An economy in which wastes have become an acute problem is precisely an economy in which this sort of thrift is a nuisance to the producer of wastes and not worth their while.

Comprehensive Collecting Services

But diversity of wastes can in fact be advantageous, if properly handled. The more highly developed waste recycling becomes, the more valuable is this very diversity of materials. The aim must be to get all the wastes possible into the system—not only those that are already valuable at a given stage of development, but also those that are only beginning to become useful and those that are not yet useful but may become so.

A type of work that does not now exist is thus necessary: services that collect all wastes, not for shunting into incinerators or ravines, but for distributing to various primary specialists from whom the materials will go to converters or reusers.

The comprehensive collecting services, as they develop into big businesses, will use many technical devices. They will install and service equipment for collecting sulphuric acid, soot, fly ash and other wastes in fuel stacks, including gases that, at present, cannot yet be trapped. They will supply and handle containers for containerised wastes and will install fixed equipment such as chutes, probably by employing subcontractors.

Who will develop the comprehensive collecting services? My guess is that the work, when it does appear, will be added to janitorial contracting services—a kind of work itself that as yet hardly exists except for the benefit of relatively few institutional and other large clients, and is not notable for yielding development work. But in economies where people doing lowly work are not hampered from adding new work to old, we may expect that just such lowly occupations as janitorial work will be the footholds from which complex, prosperous, and economically important new industries develop.

Comprehensive collectors of wastes may at first derive their incomes like the St. Petersburg trash and garbage processing plant which gets a $3 (Rs 22.80) fee per ton for handling wastes and derives the rest of its income from sale of its products. Just so, comprehensive waste collectors may at first be paid fees —either directly by those whose wastes they collect, or indirectly through taxes, or by a combination of both. This will cover the services of handling wastes not yet convertible or valuable for reuse.

But collectors will also derive income from the wastes they do pass on. As proportions of unused wastes become smaller and the income derived from sales becomes larger, comprehensive collectors will compete for the privilege of doing the collecting work free, just as some collectors of profitable special wastes now do.

Eventually they will compete for collection rights by offering fees for waste concessions, again just as some collectors of special wastes now do. In large cities, the comprehensive collectors will handle and distribute annually many, many millions of tons of materials and will supply immense numbers and varieties of converter industries and recyclers of special wastes.

Controlling Water Pollution

Waterborne wastes present quite different problems and possibilities. Although water does the initial collecting work, it is difficult to mine. Current methods of treating sewage and obtaining its products—purified water and residues—are very expensive, cumbersome and slow, and they require large spaces considering the yield. Sewage-treatment plants are consequently few compared with the need for them.

Waters polluted by industrial wastes are similarly expensive to mine. The paper industry of the Soviet Union is now polluting the waters of Lake Baikal in Siberia, an action that Soviet conservationists warn will be disastrous to the fresh-water life in the lake, life that is unique for having evolved, during long ages past, in isolation from life in other bodies of water. The justification for this vandalism, like the justification for the destruction (which has already been accomplished) of almost all fish life in Lake Erie by sewage and industrial wastes, is that treatment to remove the pollutants—or to divert them into other bodies of water, at best an evasion—is too expensive.

Thus the first priority in dealing with waterborne wastes, in view of the difficulty of mining them, is to keep them out of the water to begin with—if at all possible to collect them in some other way. This is indeed possible with some waterborne wastes: those that are in the water only and solely because the water is a means of carrying them away from the point of production.

Human excretions are in this category; to carry these wastes away by flowing water is extraordinarily primitive. It is amazing that we continue to use such old-fashioned makeshifts. Excrement in sewage complicates the handling of all city wastes, including even the runoff from rainstorms, and exacerbates all the problems of public health connected with water pollution.

Economies that develop in the future will, I think, turn to the use of chemical toilets. The residues in the toilets will be collected like any other non-waterborne wastes. In effect, they will be ash—"burned" to small amounts of dehydrated and sterilised phosphates and nitrates —collected about once a year from any given household toilet, more often from public facilities. Other kinds of wastes that will be kept out of water are analogous: they are in the water only because it is now the economical medium for carrying them in lieu, often, of comprehensive waste-collecting services. Garbage from food-packing plants is an example.

So-called heat pollution, resulting when hot water is dumped into streams and lakes, leads to highly complex deterioration of water because of the destruction of cleansing biological cycles. This damage will cease in economies that continue to develop, because the hot water will be piped and recycled to yield its heat and so save fuel. Still other industrial wastes in water will diminish, or at worst increase less rapidly than they now do, because of their own recycling.

For instance, reuse of paper somewhat reduces the effluents from papermaking, which are most severe in the pulping operations. Aluminium reducing causes much water pollution, but recycling waste aluminium causes less. And still other processes that currently pollute waters will decline owing to obsolescence. Vehicles using electricity will indirectly reduce water pollution from oil refining, for example.

The remaining industrial pollutants will be chiefly those integral to manufacturing. Water, in enormous bulk, is a necessary ingredient of many processes: not only papermaking, oil refining and aluminium reducing, but also dyeing, textile manufacturing, sugar refining, and brewing, to name a few common examples. We may expect that some types of manufacturing which do not yet exist will also use water as an ingredient and thus will add to the industrial wastes that unavoidably enter water.

Problem-Solving

But here an analogy with the problems of disease may be to the point. Medical workers who do not have to care for patients suffering from smallpox, cholera, bubonic plague, typhoid, scarlet fever, diphtheria, tuberculosis, infantile paralysis, measles, scurvy, malaria, advanced syphilis, hookworm, yellow fever, and so on, and researchers who do not need to investigate these diseases, have more time to care for victims of unconquered afflictions and to investigate the mysteries of their diseases. Just so, economies in which the many relatively easy problems of waste recycling have been solved will be in good position to deal with harder problems.

Certainly one of the hardest problems will be to find ways of mining— or, to look at it the other way around, purifying—great volumes of unavoidably polluted fresh water swiftly, cheaply and at the site of the pollution. It is my conjecture that these techniques will be built upon an entirely different kind of water treatment for a wholly different purpose: the mining of ocean waters swiftly and cheaply for minerals. And that work, I think, will be built upon still different work: the techniques for extracting fresh water cheaply and swiftly from ocean water—something that is now almost possible.

In the past, when acute city practical problems have been solved, the solutions have not been an economic burden upon their societies. On the contrary, solutions have increased true economic abundance, true wealth. Of course more workers have been needed to do the previously undone work, but the costs of doing undone work have not been at all analogous to adding unproductive bureaucracies, nor the cost of maintaining idle people on welfare.

Just so, we may expect that the solving of pollution and other problems arising from wastes, while requiring many workers, will not be an economic burden upon the developing economies where such problems are, in fact, solved. On the contrary, all the wealth extracted from recycled wastes, plus pure air and pure water, will represent increases in true abundance. Indeed, much of the new work, we may expect, will wholly or partly support itself even during its difficult trial, error and development stages.

WHICH GUIDE TO THE PROMISED LAND: FULLER OR MUMFORD?

ALLAN TEMKO

With delicacy and perception Allan Temko examines the violently opposed responses to the role of technology of two remarkable thinkers. R. Buckminster Fuller sees the machine as offering solutions to all major human needs. Lewis Mumford believes that uncontrolled technology threatens the human scale essential to a good society.

Mr. Temko is an architectural critic who teaches urban history at the University of California at Berkeley. He is the author of "Eero Saarinen" and "Notre-Dame of Paris". The following article is abridged from the Summer 1968 issue of "Horizon" and reprinted by permission.

No MATTER how remotely separated Lewis Mumford and Richard Buckminster Fuller may be in temperament and thought—which is as far apart as ultraviolet and infrared in the diffused spectrum of modern environmental theory—they stand very close on several counts. Both believe that man's potentialities are virtually limitless, but that he has failed to make the most of them, or else has grievously misused them, so that technological civilisation—which if rationally organised could transform the world into a heaven on earth—is in fact in a parlous way and needs a thorough overhaul on a global basis.

Therefore they recommend, each from a radically different point of view but with equal fervour, that the chief components of the world environment, such as large cities, be renewed or rebuilt according to "comprehensive" and "integrated" design. Whatever else they may be, Mumford and Fuller are integrators who seek the wholeness of man in an age of widespread cultural and physical disintegration.

Both of these "one-world" men believe, moreover, that before a valid global order can be established, man's spiritual and intellectual relationships

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with his physical environment, including of course machine-made environment as well as natural surroundings, must be profoundly redefined and revised. To Mumford, the humanist, as to Fuller, the technologist, the very survival of civilisation hinges on the humane use of depersonalised technology.

Non-Academic Generalists

Each of these men describes himself as a "generalist" and disdains slavish specialisation as a bane of the present age. Even when they address themselves to comparatively narrow subjects—Mumford to the neolithic village, perhaps, or to the psychology of Jung, or to gardening at his home; and Fuller to the etymology of the word "dome," to sailing off the Maine coast, or the design of drainage systems—each of them thinks within the frame of a much larger conceptual scheme. Both combine a bewildering range of disciplines within their unifying philosophies.

Such catholicity scarcely endears them to conventional pedants. For their part Mumford and Fuller, who are otherwise kindly men, have little patience with conventional wisdom, whether exhibited by professors, politicians, or plumbers. Neither of them is an academician, although both have held famous professorships and have spent much time in universities. (Fuller, who never got past a tumultuous freshman year at Harvard is now a research professor at Southern Illinois University at Carbondale, but he is seldom there. Mumford, whose studies at New York's City College, Columbia, and the New School for Social Research and in the museums and libraries of New York were so free that his only academic degrees are honorary, became a Scholar-in-Residence at Harvard.)

On the campus, understandably enough, their all-encompassing doctrines often evoke the private gibes of pedagogues who resent their brilliant forays into carefully fenced scholarly terrain, but such professorial scepticism does not dampen the enthusiasm of students who are "turned on" by these vigorous septuagenarians. Though their styles could not be more different—Mumford's measured eloquence and smiling dignity contrasting sharply with Fuller's bombastic and garrulous monologues—both are inspiring teachers who believe that the fate of civilisation may be decided, in H.G. Wells's phrase, by "a race between education and catastrophe."

Yet despite their similarities, the two are irreconcilably opposed in their interpretations of man and his place in the universe, just as they are in total disagreement concerning the role of science and technics in civilised life. The profound differences between their concepts of planning and architecture are part of these larger philosophical differences, and cannot be fully understood except in the broader context of their total thought.

The Fallacy of Systems

Neither man has dealt at length with the other in any of his voluminous writings, but everything to which Mumford would object in Fuller's approach is castigated in a powerful chapter in

The Conduct of Life entitled "The Fallacy of Systems," which Mumford has called "a key to my whole life and thought."

Since the 17th century, he asserts, "we have been living in an age of system-makers, and what is even worse, system-appliers," the Procrustean mutilators of life who lop off its essential irregularities to fit "a single set of consistent principles and ideal ends." But life "cannot be reduced to a system: the best wisdom, when so reduced to a set of insistent notes, becomes a cacophony: indeed, the more stubbornly one adheres to a system, the more violence one does to life."

Against "system-mongers" who seek "to align a whole community according to some limiting principle," Mumford opposes his "philosophy of the open synthesis," which he also names "the affirmation of organic life." In this view the valid features of one system or another may be invoked by turns "to do justice to life's endlessly varied needs and occasions."

This would lead above all to a life of "balance," maintained in "dynamic equilibrium," with an open attitude toward change. "Those who understand the nature of life itself will...see reality in terms of change alone." History offers proof of this lesson: "Actual historic institutions, fortunately, have been modified by anomalies, discrepancies, contradictions, compromises: the older they are, the richer this organic compost." And yet, "all these varied nutrients that remain in the social soil are viewed with high scorn by the believer in systems."

Among the many systems, including capitalism and Marxian communism, that he enumerates with such distrust, Mumford has taken care to include utilitarianism, with its crass mechanistic notions of "efficiency." Although the social crimes committed by industrial civilisation in the name of utility and efficiency should by now have shorn us of any simplistic mechanical "idea of progress," nineteenth century utilitarianism happens to be alive and well in the twentieth, under the guises of technocracy and scientism. If Mumford, in the rare passages where he mentions Fuller, had not considered him merely as an ingenious housing prefabricator with a "Jules Verne-Buck Rogers" side to him, but had instead analysed Fuller's thought, he might well have consigned him to one of the lower circles of an organic philosophical hell among the Benthamites.

Total Technology

Fuller cannot be categorised quite so neatly, however, for he is an authentic original. He is much more than a rudimentary technocrat who has greater confidence in engineers and machinery than in politicians and the present price-system. But certainly, as far as faith in the system of doing the most with the least is concerned, he is a true believer.

He is also an indefatigable system-applier who seizes any opportunity to find fresh exemplifications of his general principles, with the result that the earth's surface is now dotted with some five thousand geodesic domes of greatly varying dimensions and materials, serving innumerable purposes in climates as diverse as the frozen Arctic and steamy Louisiana, but all based on the fundamental structural concept.

As physical systems go, Fuller's is remarkably complete, and yet, like his domes, structurally lean. For all his prodigality of language, replete with arcane Latinisms of his own devising that put a substantial obstacle between him and his audience, Fuller's system rests on only a few grand concepts, just as his architecture is limited to a few basic forms.

His philosophy is derived almost entirely from post-Newtonian science and is as near to being an *absolute* system, based on "universal laws," as any yet postulated by a modern environmental theorist. Since he began formulating universalist concepts in the 1920's, taking the whole world—including the oceans and the atmosphere—as an integral field of development, Fuller's energies, according to his biographer Robert W. Marks, have been "centred in a single drive: to promote the *total use of total technology for total population,* 'at the maximum feasible rate of acceleration.' "

But this unremitting exploitation of technology is inseparable from science and is based on cosmic harmonies. Fuller's structures are all based ultimately on the triangle, or combinations of triangles, which he claims is the basic building unit of the universe, lending itself naturally to incorporation in spheres, on macrocosmic and microcosmic scale. If Fuller is right, we are about to learn that chaos is nonexistent: "all that was chaotic was in man's illiterate and bewildered imagination and fearful ignorance."

New Sources of Energy

But certain things will remain unpredictable, at least for the time being, due to the phenomenon that Fuller has dubbed "synergy," which means that "the behaviour of the whole system" is "unpredicted by the behaviour of any of its components—or sub-assemblies of its components." An example of a totality adding up to much more than the sum of its parts is a metallic alloy such as chrome-nickel steel. It, as Fuller points out, is far stronger than the sum of the strength of its separate ingredients.

A rather more overwhelming example of synergetics, to be sure, is the release of atomic energy. Fuller in one of his great insights foresaw in the 1930's that, thanks to a new and unlimited source of energy, a revolutionary increase in the world's productive capacity was at hand. With somewhat less insight, he assumed a corresponding improvement in human welfare.

What followed of course was the Bomb. Fuller was undaunted, and not really surprised, for he had long been aware that the more far-reaching technological innovations of modern times, for better and worse, have often originated in weapons research and development. Hence his unashamed association with the Pentagon—to Mumford any such collaboration was the nadir of conscienceless scientific and technological perversion—which has led to the large-scale delivery of his domes, sometimes by helicopter, to military establishments in many parts of the world.

Meanwhile, nuclear power stations—soon to be combined with the salinewater conversion facilities indispensable to Fuller's long-standing scheme for man to occupy the watery three-quarters of the globe—appeared in many countries. In 1958 Fuller told Nehru: "Science has hooked up the everyday economic plumbing to the cosmic reservoir." In other words, wealth is now nondepletable. It is really "universal energy," and therefore classical economics, like classical geometry, may be totally discarded.

Thus Fuller's search for a general solution to terrestrial problems has gone into celestial orbit. Unhesitatingly he has placed himself in the forefront of the effort to get out into space, in order to tap inexhaustible cosmic resources; and he is a consultant to the team of scientists and technicians who are designing the first moon colony. What Fuller hopes to bring back from the moon, for the good of mankind, is the first "little black box" containing a truly miniaturised mechanical system including tiny energy fuel-cells and a tiny waste-disposal system, which will revolutionise household management everywhere in the world.

Analogous reasoning has permitted him to take some comfort from the introduction of giant helicopters in the Vietnam war, a war that in other respects causes him pain, but nothing like the outraged sense of horror and anguish that has made Mumford one of the foremost spokesmen for peace and disarmament in the United States. If these powerful aircraft were released for nonwar duty, noted Fuller, they could deposit still larger geodesic domes any place on earth, providing huge instant shelters for any climate.

The Myth of the Machine

With deepening despair Mumford regards such "power-centred" infatuation with technics as pathological folly. It is not that Fuller's schemes, which Mumford once might have dismissed as science fiction, are unrealisable. It is that they are all too swiftly feasible in an age of unparalleled technical capabilities that are often beyond effective human control. If Mumford were to single out Fuller himself he might describe him, as he once did the French architect Le Corbusier, as "deeply in harmony with the negative tendencies of our times."

For Fuller is probably America's most vociferous and energetic advocate of what Mumford denounces as "the myth of the machine": the notion that technics, rather than man himself, is the central component of culture. By now this technological interpretation of human progress has a rather long history, dating from the early industrial period when Thomas Carlyle and others first called man a "tool-using animal."

On the contrary, Mumford replies, man from his beginnings has been "preeminently a mind-making, self-mastering, and self-designating animal." Therefore, it is not the mindless machine (which, according to Fuller, works "more reliably than the limited sensory departments of the human mechanism"), but man in all the richness and complexity of his "symbolic" activities who must be the true centre. Not technical advancement, but human development, which imparts significance to life, is Mumford's measure of social good.

Thus, from *The Story of Utopias* in

1922 to the early masterpiece *Technics and Civilization* of 1934 and *The Myth of Machine* in 1967, Mumford has celebrated the "mindfulness" of man, whose supreme discovery has not been tools, but his human self. Hence human development is scarcely confined to work, even though Mumford places considerable value on "joyful common toil" (which should not be mistaken for nostalgic agrarianism). The sum of man's rational and irrational activities includes "ritual, art, poesy, drama, music, dance, philosophy, science, myth, religion"—which are "all as essential to man as his daily bread."

Mumford has never rejected the machine *per se.* But he would certainly cease manufacturing many machines, not only those governed by "invisible" electronic controls which can now virtually declare war by themselves, but also other seemingly less menacing machines that would condemn men to "mandatory consumption" of the limitless array of products poured forth from the technological cornucopia.

Transforming the Human Environment

Mumford is more profoundly aware than Fuller that the impact of science upon technology in the past century has caused "a radical transformation in the entire human environment." He further realises, as Fuller apparently does not, that this transformation—which has equipped man with so many marvellous "mechanical extensions"—also transforms man psychically.

In his historical synthesis of urban civilisation, Mumford has traced the coexistence of two different technics: "one 'democratic' and dispersed," which found its highest expression in the authentic "polytechnics" of the Middle Ages; "the other totalitarian and centralised," whose supreme monument was the Pyramid of Cheops at Giza, the largest of man-made tetrahedral structures—Fuller's ideal assemblage of triangles.

With unerring consistency Fuller has completed Mumford's argument by designing a pyramid greater by far than any dreamed of by the Egyptians: his "Tetrahedral City," two hundred stories high and two miles long to a side, which will be a metropolis in itself. The vast structures, surely one of the most astounding visionary designs in the history of architecture, can either float on a moat in Japan, the earthquake-ridden, land-short country for which it was designed; or else it can be towed out on the ocean, with its nuclear power plant providing the energy to work its innumerable machines and its fresh-water distillery, and with supersonic airliners, giant ocean-going vessels, and electronic communications connecting it to the rest of the world and to outer space, where a Fuller-influenced settlement may by then be in operation on the moon.

What Is Man?

Fuller's megastructure is to Mumford nothing more than an "urban hive," better fit for social insects than for men. Rather, it might accommodate the superb robot that Fuller described, only partly tongue in cheek, in his answer to the question "What's a man?":

> *Man?*
> *A self-balancing, 28-jointed adapter-base biped; an electro-chemical reduction-plant, integral with segregated stowages of special energy extracts in storage batteries, for subsequent actuation of thousands of hydraulic and pneumatic pumps, with motors attached; 62000 miles of capillaries; millions of warning signal, railroad and conveyor systems; crushers and cranes .. and a universally distributed telephone system needing no service for 70 years if well managed; the whole extraordinarily complex mechanism guided with exquisite precision from a turret in which are located telescopic and microscopic self-registering and recording range finders, a spectroscope,* et cetera....

All that is omitted is the purpose for which this most beautiful mechanism exists; and not surprisingly, Mumford asks instead: What is the human brain? It serves:

> *as a seat of government, a court of justice, a parliament, a marketplace, a police station, a telephone exchange, a temple, an art gallery, a library, a theatre, an observatory, a central filing system; and a computer: or, to reverse Aristotle, it is nothing less than the whole polis, writ small.*

Yet the opposition of Mumford and Fuller is not quite that simple. If Mumford's generous philosophy theoretically accommodates incessant change while retaining the enjoyable fruits of the past, he himself has not accepted the largest part of the magnificent liberating innovations of the past generation. The computer is inherently no more evil than the abacus, just as the jet plane is for no fundamental reason a less desirable form of transportation than the railroad.

The value of machines depends upon the use to which they are put by men. In this respect history, on which Mumford has built one of the most complete philosophical syntheses of the modern age, may have escaped him.

An Open Future

Even though machines have brought air pollution and devastation of the landscape, for the majority of Americans they have also brought new leisure, release from age-old drudgery, improved education, health and cuisine, symphony orchestras, galleries and museums, a growing awareness of the necessity for privacy and solitude, a fresh awakening to the majesty of the wilderness, educational television stations, and millions of inexpensive paperback books, including Mumford's and Fuller's.

Fuller has ridden this wave of the future. If his puristic simplifications are oversimplifications, if his prefabricated houses are not yet as good as fine traditional dwellings, if his domes and space-frames impose standardised solutions where a fully industrialised technology should provide limitless variety for personal choice (as it does in our machine-made clothing), Fuller has nevertheless been open to the future.

And the future remains open to us. To adventure truly upon the future as civilised beings we need new criteria for action. We need a philosophy capable of solving unprecedented problems, a philosophy that is neither linked indissolubly to the past nor stained with the sin of pride that Bertrand Russell called "cosmic impiety." The world, as Mumford knew from the start of his career, is a single complex entity, but it must be ready for change on a scale that few men, Fuller among them, have dared to contemplate.

What each of them has done, really, has been to write philosophical poems celebrating a world that does not truly exist, and perhaps can never exist, even though the poems are true. Mumford is an epic poet, as grave, as moral, as grandly tragic, as John Milton; Fuller is a lyricist, and his bright, luminous structures had best be taken as lovely technological songs. Someday, from somewhere on the unified earth, a new poet may emerge to combine their gifts. Meanwhile, their contradictory visions of a better-ordered universe have laid the foundations for a new environmental theory.

ENVIRONMENTAL PROBLEMS IN DEVELOPING NATIONS

LUTHER J. CARTER

Concern over what man is doing to his environment has been largely concentrated in the more industrialised nations where the problems have been compounded by massive technological innovation. In the following article, adapted from "Science," the author argues that developing countries have an equal stake in protecting their land and resources from the unanticipated hazards of some modernisation projects.

For the poor nations the word development has carried the connotation of something necessarily good—of "progress," of a break with traditional, "backward" ways and adoption of the ways of the technologically advanced countries. To build a dam for controlled irrigation or to convert a rain forest into farmland would seem to be obviously useful and dramatic measures toward modernisation. But scientists and conservationists are now increasingly worried about the environmental hazards that headlong development may bring.

The price of development has included pollution problems, loss of farmlands and habitat (for people as well as wildlife), and even the spread of disease. Some environmental disruption is an unavoidable concomitant of development, but, as ecologists and other environmental scientists insist, harmful effects can often be anticipated and minimised if development is preceded by ecological studies and careful planning.

Though the poorer nations remain intent on development goals, and though the industrialised countries continue to encourage them in this, signs are appearing that the commitment to change may come to be tempered with caution. For example, in September 1968 the United Nations Educational, Scientific, and Cultural Organisation (UNESCO) held a

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conference on rational use and conservation of the biosphere, and among delegates of the sixty-three participating nations there clearly was awareness that development often has led to environmental problems.

The United Nations General Assembly has since decided to convene, hopefully in 1972, a conference on the human environment, and this meeting, too, will be concerned partly with ecological problems arising from economic development. It may soon be the vogue to view environmental problems in a world perspective.

Recently the Conservation Foundation (a Washington-based organisation serving as a "bridge between ideas and action" in the field of conservation) and the Centre for the Biology of Natural Systems, of Washington University in St. Louis, sponsored a conference on the "ecological aspects of international development." This meeting, held near Washington, is believed to represent the first ecological "post audit" of international development ever conducted.

Harmful Side Effects

The conference participants, numbering almost seventy, were mainly scientists (mostly biologists) and social scientists from the United States and abroad. They included such people as S. Dillon Ripley, secretary of the Smithsonian Institution in Washington, D. C.; E. B. Worthington, scientific director of the International Biological Programme headquartered in London; Gunnar Myrdal, internationally known Swedish economist and author of *Asian Drama;* and Barry Commoner, director of the Centre for the Biology of Natural Systems.

The purpose of the meeting was to build a clear case for making ecological considerations central to development planning and decision making. To do this, the conferees presented and discussed numerous case histories of development activities which have either been destructive in themselves or have produced detrimental side effects, some of which environmental scientists could have predicted.

These "horror stories," as they were called, involved a variety of activities, such as colonisation of new lands, dam building and irrigation, pest control, and extraction of minerals and timber from oceanic islands. A sampling of these case histories follows.

Colonisation of new lands. In Brazil's Amazon basin an agricultural colony was established in the late 1940's at the confluence of the Madeira and Madre de Dios rivers. Rain forests were cut away and the land was tilled, with disastrous consequences. For the soils of the region, rich in iron oxide and alumina, are highly subject to a process called laterisation, which can quickly turn cleared lands into rocky, brushy barrens. The colonists cultivated their fields among blocks of laterite and found the soils they were working compacting to rock in five years' time.

Dams, reservoirs, and irrigation. Kariba Dam, constructed in the 1950's on the Zambezi River between Zambia and Rhodesia, has formed a huge, 1700-square-mile reservoir rivalled in size only by the reservoirs created by the Volta

Dam in Ghana and the Aswan Dam in the United Arab Republic. Planned largely for generating hydroelectric power, the Kariba project is said to have led to a variety of unanticipated problems.

According to a conference paper by Theodore Scudder, professor of anthropology at California Institute of Technology, serious soil erosion is occurring because farmers who were flooded off their former lands have refused to change their traditional farming methods to suit conditions in relocation areas. Also, vegetation along the shores of Kariba Lake has created habitat attractive to the tsetse fly, aggravating the pest control problem in this Central African region, where the population is heavily dependent on animal protein.

Other problems beset the project. For example, aquatic plants invaded Kariba Lake and, within four years of the dam's completion, covered more than one-tenth of the lake's surface, interfering with commercial fishing and creating other difficulties.

Egypt's Aswan High Dam, with its hydropower, irrigation, navigation, and flood-control potential, has been considered one of the most promising of the great postwar developments. Yet, in a conference paper, Henry van der Schalie, of the University of Michigan's Museum of Zoology, viewed this project (completed in 1968) pessimistically. He said that it is virtually certain to lead to a disastrous spread of schistosomiasis along the upper Nile, a region where heretofore the incidence of this debilitating, often fatal parasitic disease has been comparatively low.

This is predictable, van der Schalie explained, because the project to bring year-round irrigation to the upper Nile provides the canals and ditches preferred by the schistosome's snail host. In the Nile delta, where year-round irrigation has long been practised, the incidence of schistosomiasis is high, nearly all the inhabitants of some villages being infected. Moreover, attempts to combat schistosomiasis by snail eradication and sanitation measures, or by the treatment of infected persons, are said to have had only limited success.

Insects and Oceans

Pest control. Heavy use of synthetic organic pesticides for the control of cotton pests in Peru's Canete Valley during an eight-year period that ended in 1956 had nearly ruinous results. A former director of the Canete farmers' agricultural experiment station, Theodore B. Barducci, said he had recommended against reliance on these pesticides but found farmers of the valley seduced by the promotional claims of the pesticide manufacturers. Target insects gradually developed immunity to the insecticides, while useful insects that had helped to keep the pests in check were destroyed, Barducci said.

In 1957 use of the synthetic pesticides was generally prohibited in the valley, and a pest-control programme that relied partly on biological methods was established. For example, useful insects were reintroduced and farmers were told to prepare their soils dry—a condition unfavourable to the propagation of the cotton pests. The new programme, Barducci said, has been successful; the pest populations have declined and cotton yields have returned to satisfactory levels.

Oceanic islands. F. Raymond Fosberg, of the Smithsonian's Museum of Natural History, described oceanic islands as being especially vulnerable to mismanagement. This is so, he said, because such islands are small and are often characterised by unique, irreplaceable flora and fauna having a history of more or less local evolution.

The island of Banaba in the central Pacific, he reported, was recently abandoned by its inhabitants following phosphate mining operations. Most of the vegetation had been eliminated and most of the soil removed. Supplies of fresh water, always marginal, had become undependable. Phosphate islands of the eastern Indian Ocean also have been mined, Fosberg said, and, except for their marine resources, are now scarcely capable of supporting human life.

Carl A. Carlozzi, professor of resource planning at the University of Massachusetts, told of threats to the Caribbean's Lesser Antilles—for example, from the building of huge resort hotels which overtax local waste disposal systems. According to Carlozzi, the government of Dominica, in the British West Indies, entered a contract with a lumber company, allowing this firm to begin cutting Crown Land forests for export, but without making adequate provisions for conservation and forest regeneration. Islands such as Dominica (and perhaps most underdeveloped countries) have neither the capital nor the markets for developing their resources on their own, Carlozzi pointed out. Therefore, development is frequently left to foreign investors who, in using the local resources, are guided less"by conservation principles than by considerations of profit.

Divergent Views

Although one of the conference's underlying assumptions was that development will continue throughout the world, it was evident that many of those who participated held highly conservative views about altering the natural scene. Yet others took the position that, even if a project can be expected to create serious new problems, this is not necessarily reason to give it up.

This divergence of views was evident in the discussion of the Aswan Dam project. "This dam is not an asset," said van der Schalie, who in the past has done field work on Egypt's schistosomiasis problem as a leader of a World Health Organisation team. "It is bound to be a liability until such time as we know how to control the intermediate (snail) host." However, John F.V. Phillips, an agricultural scientist from the University of Natal in South Africa, said that, despite the schistosomiasis threat, irrigation should be extended, for progress in controlling the disease must eventually come.

In another context, Kenneth E. Boulding, a University of Colorado economist, expressed the view that it is altogether plausible and defensible to attack one problem even though you are thereby creating new problems for others to solve. "There is a whole school of economics which argues that the way you get growth is to upset things," he said.

Though ecologists tend to be too "equilibrium-minded," their approach to development problems may have the virtue of helping the world avoid irremediable disasters, Boulding suggested.

As others observed, the ecological approach generally is not followed, for a variety of reasons. One reason cited is that ecologists often cannot predict with certainty the consequences of various schemes of development. Warnings about harmful side effects that may result from a proposed development seldom prevail over claims that the project will produce tangible benefits.

According to Barry Commoner, a "reductionist" attitude prevails among scientists, hampering the development of ecological understanding. "The assumption is too often made that [a complex system] can be understood simply by looking at the properties of its isolated parts," he said. A reductionist bias is apparent in technology, too, Commoner said, suggesting that technology poses a special danger in that its success in accomplishing specific tasks (for example, building hydropower plants or better automobiles) leads to the illusory idea that, for *any* problem which arises, a technological solution will be found.

Aid and Environmental Protection

Lynton K. Caldwell, a political scientist from Indiana University, observed that unwise development plans are often an aspect of political opportunism. To have sound planning, he said, developing countries must find ways to make decision makers apply ecologically relevant criteria and to protect these officials from the temptations and political stresses of their situation.

For many of their more ambitious public projects, these nations depend on assistance from the industrialised nations and from international institutions such as the World Bank. These donor nations and institutions would seem, therefore, to be in a strong position to insist, as a condition for grants or loans, that ecological factors be considered in all project-selection and pre-investment surveys and in the carrying out of the project itself. While the aid-grant agencies of nations have not been indifferent to the environmental effects of projects which they sponsor, it seems clear that they have not exercised their potential influence as forcefully as they could.

It might prove easier to persuade the *international* aid-granting institutions to adopt a tough policy of this kind than to persuade government agencies such as the U.S. Agency for International Development (AID) to do so. John Rothberg, AID's science liaison officer, stressed the point that, while his agency can withhold assistance from an unsound project, nevertheless the assisted nations for the most part make their own development plans, for better or for worse.

The long-term solution to the problem of reconciling development planning with ecological factors was seen to lie in research and education, a conviction which would seem to find support in the increasing interest in, and influence of, ecology in the United States. The International Biological Programme (IBP) represents a significant research effort to gain further understanding of natural ecosystems, but it has been weakly financed and may not produce all the results originally expected of it.

The question is whether it may be possible to infuse public opinion throughout the world with a simple, valid concept such as "spaceship earth." Ultimately, science—meaning verifiable knowledge of ecological processes—should prove decisive. "In the long run," Professor Caldwell observed, "science is a very powerful influence. We don't burn witches any longer. We don't treat the insane as though they were invaded by devils. Science does change human behaviour, but to change it massively takes time, and time is rapidly running out."

BRINGING SCIENCE UNDER LAW

HARVEY WHEELER

The day when scientists could be left free to do anything they want are finished—or should be. At a time when there is almost instant transferal from theories to facts, even facts as horrendous as the hydrogen bomb, the need for controlling developmental science by law is unavoidable.

The author of the following article which appeared in "The Centre Magazine" is a political scientist who has recently been a Fellow of the Centre for the Study of Democratic Institutions.

IN REFERRING to science and technology here, I am invoking the distinction Linus Pauling once made between "developmental" science and what is usually called "pure" science. By developmental science Pauling did not mean merely technology nor did he mean only bureaucratised science, i.e. the mass cooperative endeavour that takes place in great institutes and business corporations. Rather, he had in mind the day-to-day work of the brilliant men who are exploring the implications of the breakthroughs made by first-magnitude geniuses.

One distinctive feature of developmental science is its rapid technological transformation. In fact, the pace of technological application is such that developmental science these days is almost immediately converted into technology. In speaking of science in this article, I have this in mind. I am not, in a word, concerned with the basement-and-garret science of the lonely pioneering genius.

Should Science be Ethically Neutral ?

A shock reverberated through the intellectual establishment of the West in the mid-twentieth century when it became apparent that science was not necessarily incompatible with totalitarianism. The West had previously "proved" on paper that science required the so-called free market in ideas, a John Stuart Mill type of liberal democracy, in order to flourish. This, it now became clear, was simply not true.

There had been an even more disturb-

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ing revelation earlier. Nazi Germany had shown that even the most "ethical" of the professions, medicine, was capable of turning its humanitarian code into a licence to perform gruesome experiments on living people. While this was chilling, it also seemed at the time to be too perverse to be a threat elsewhere. Now, however, with authoritarianism increasing throughout the West, and with organ transplants becoming commonplace, we are beginning to have vague fears that something similar to the Nazi corruption of medical science might be looming for all of us.

A third shock occurred after World War II when we learned that our own American scientists had eagerly produced history's most awesome weapons, hardly stopping to consider that moral issues might be involved in their decision to do so. Science, these eminent men insisted, was ethically neutral.

Recently, a technological development renewed our concern. Dramatic developments in mathematical logic, cybernation, systems analysis, and the planning-programming-budgeting approach to administrative control have been giving us reason of late to believe that a science-spawned managerial revolution may yet be in the offing. During the past twenty years or so, it has begun to appear that management may gain access to techniques and tools that could be used to achieve their managerial ends without concern for the public good.

The appearance of a new technology, of course, need not necessarily be a matter of concern unless another factor is present. The new technology and its practitioners must be engaged in doing something that intimately affects the public interest. When this happens there are grave potentials for harming, as well as benefiting, society. The question, then, arises as to whether or not we can or should act collectively to inhibit the harmful effects that may result from the bad uses of science and technology. This is our present problem.

Rule or be Ruled by Technology

Currently many solutions are being offered. One is to find some way of revivifying the classical idea of the profession. Another is to create some sort of government agency charged with coordinating science policy. Both solutions strike me as seriously deficient. Nothing less than an entirely new look at science will suffice. This requires discussion of what has come to be known as the scientific revolution.

The process by which the A-bomb was created pointed up the inner political logic of that revolution. It also laid bare the corrosive impact developmental science is having on our traditional liberal democratic dogmas and practices. The birth of the bomb demonstrated once and for all that neither the people, their elected representatives, nor even bureaucratic experts are competent any longer to "legislate" about scientific problems. The traditional deliberative processes of Western democracy, it is clear, were undermined when it became apparent that they could not cope with the implications of contemporary science for public policy.

But there was also a positive side. The implications of the new science ranged far beyond the interests and activities of the scientific establishment. Fundamental scientific innovations, such as those relating to atomic energy and solid state physics, furnished the foundations on which the very shape of society would be built in the future. Important scientific discoveries had always brought about profound social changes, of course. But as long as these discoveries occurred infrequently and without conscious anticipation, much less design, one could not say that they were called forth politically.

However, with the maturity of the sciences, Francis Bacon's *New Atlantis* became a prescription for the present rather than a fanciful vision of the future. The time, then, had arrived when science made it possible to "legislate" the shape of the future.

This shifted politics to a new plane. Those who had produced the atom bomb were actually the first to see that they had wrought not only a scientific but a political revolution—legislatures might continue to operate in their accustomed fashion. Politicians might continue to campaign for office as of old, but those who were really determining the outlines of the future belonged to the scientific, rather than the political, establishment.

As a consequence of these developments, the significance of today's scientific revolution can be summarised simply: The revolution has brought about social transformations; relationships between theory and practice that seemingly had been firmly established by the Industrial Revolution were reversed.

This change means, among other things, that in the world created by the scientific revolution the critical force in society will no longer be the flow of capital but scientific and technological innovation. The most fateful struggles in that society will be fought over the efforts to direct and control these innovations. This is where constitutionalisation comes in.

Our notion of legislation and/or constitutionalisation has long been built on two assumptions, neither of which is now acceptable. The first was that men of common prudence and wisdom are capable of understanding every political problem that needs to be understood. The second was that such men could make laws to deal with these problems.

The scientific revolution is undermining the first of these assumptions by posing problems too technical for laymen to fathom. It is undermining the second by making it impossible for legislatures to lay the foundation for the future. The result is already evident: we either have to invent new procedures for handling science policy or be ruled by technology.

The Medieval Solution

How do we deal with the problem? At first blush, it might seem enough merely to strengthen our governing institutions with more scientific advisers. But this is not enough; it won't do. The reason is that the scientific expert has to be such a narrow specialist he cannot acquire the general knowledge necessary to grasp the social and philosophical implications of even those technical matters on which he is an acknowledged expert. The same thing applies in reverse. The generalist's knowledge of any one speciality is not thorough enough for him to master the complex problems now associated with science and technology.

There is a philosophical issue here. It turns on a very old argument about science—one as old as the temptation of Adam and Eve, the curiosity of Pandora, or Prometheus' defiance of the gods. Perhaps of all such myths, the Doctor Faustus story is the most pertinent.

That myth embodied the essential ethic of medieval science—something the men of the Middle Ages took very seriously. Remember they did not look upon science as ineffectual. On the contrary, everyone believed in its power—black magic it was called—just as everyone believed in white magic, the power of miracles. But one magic was satanic and the other godly. One defied God and incurred His wrathful retribution; the other entailed His bountiful intervention.

The war between the two varieties of magic was carried over into attacks on magicians who practiced the black arts of alchemy and astrology and employed spells, secret words, cabalistic designs, talismanic charms, and amulets to gain power over the spirits who—it was widely believed—were in control of human events. As the various departments of magic matured into the post-medieval sciences, the pioneers were anxious to purge science of this reliance on supernatural forces.

But, though science was changing the face of the earth, the theologians still looked at the world in the old manner. As a result, the old war between black and white magic turned into a new war between science and religion.

The leading early apologist for the new view of science was Francis Bacon. Bacon claimed that science had no theological significance; like heaven and earth, theology and science were simply different realms of truth. To make his case, Bacon and his followers invoked the Biblical text that distinguished between the things owing to Caesar and those owing to God. They argued from it that a man could be faithful to one and yet serve the other. Beyond this, Bacon held that there was something intrinsically humanistic about science. It advanced human knowledge, which in turn contributed to human progress. The only thing necessary, then, was to keep science free of dogma and authority.

Bacon's position in time became the professional ideology of science, to such an extent that it seemed to be a self-evident truth. All seemed to be going well —the ideology went largely unchallenged —until the contemporary scientific revolution reopened certain ethical issues that had remained closed since the seventeenth century. We are, in a sense, then, back to Doctor Faustus.

Recall that the Faustian legend was informed with a view that had science dependent on the special intervention of supernatural forces. Medieval science had sought for ultimate power and knowledge—omnipotence and omniscience, the attributes of God. The scientists of that period, in a word, had pursued the most fundamental quests.

They tried to plumb directly to the secrets of the creation of life. They sought the magical elixir that would bring everlasting youth, searched for the philosopher's stone that would convert the baser metals into the finer, puzzled over the secret "signatures" of events that would unlock the mysteries of past and future and produce control over the paths of the planets and the vagaries of the weather. They propitiated spirits who could empower them to move mountains, change men into different shapes, and permit moving about through space and time at will. With such goals, the prospects for science were more revolutionary, and the risks incurred by its practitioners far more dangerous, than what was to come later.

Medieval science, then, faced up to the questions about men who would play God. The advent of the early-modern sciences required a new informal "contract" in place of the older one Faustus had negotiated with Satan. According to the new pact, scientists would abandon all the quests that were disturbing to theologians in return for freedom to work without interference. As scientists they would stay out of God's province, concerning themselves only with the problems of this world. Theologians and philosophers for their part would stop pillorying science. Francis Bacon drafted this "contract" for the Anglo-Saxon world; it was also described by Descartes and Leibnitz.

The Modern Problem

Although modern science abandoned an over-all ethic, it did adopt a kind of internal code. The scientist was supposed to maintain his methodological and intellectual honesty, but that was all. Hence, from a deeper standpoint early-modern science was ethically barren, and proud of it. This, however, will no longer do.

Science today is once more delving into something like the quests pursued by medieval magic. For example, the deliberate synthesis of miracle fabrics, exotic metals, and precious stones has become an everyday occurrence. The genetic code through which the rudimentary substances of life are ordered into their distinctive shapes and functions has been deciphered. The French physicist Pierre Auger has even suggested that molecular biologists may succeed in recalling previously extinct animal forms from the burial grounds of history.

The contemporary scientist must, then, face the ethical problem Doctor Faustus confronted. Unfettered freedom for developmental science is no longer tolerable. Scientists themselves recognise it, as was evident in the bad consciences of some of those who built the atom bomb.

The distinguished physicist Max Born has pointed to a source for the ethical corrosion in modern science. For men to be ethical they must perceive the moral implications of the alternative actions open to them. This is not necessarily a pragmatic or utilitarian view of ethics, for even if one holds that such things as murder are evil the hard question comes when we have to decide in a given case exactly what constitutes "murder" and whether or not there are circumstances that might justify it. Ordinarily, ethical judgments of this kind are not too difficult.

The case of the scientist, though, is somewhat different. When a scientist sets out to produce atomic bombs or death rays, the preliminary research may be on such an abstract level that the connection between pure science and the purpose for the research effectively disappears. The scientists working on such projects can dispel any ethical qualms they might have by intoning the traditional ideology: any augmentation of knowledge must be good.

In short, ethical judgments require making a connection between actions and effects, and it is this connection that science dissolves. Moreover, the full implications of a scientific discovery may not become completely apparent for many years. A scientist may work in full innocence only to learn years later that he helped produce a horror.

It has always been true, of course, that an action in the present may have unforeseeable harmful effects in the distant future. The invention of the automobile is an all too familiar illustration.

A similar separation—not in time but in function—accompanies bureaucratisation. Bureaucracy transforms people into impersonal functionaries. This was one reason Nazi concentration-camp executives could go about their duties seemingly detached from the atrocities they administered. A similar effect occurs when science becomes bureaucratised—the individual scientist deals with so minute a segment of the over-all project that he becomes almost as detached from the implications of his work as Adolf Eichmann alleged he was.

Now contemporary science is raising this separation between actions and their effects to a new level. The more profound a scientific innovation, the more universal its potential applications—and the more difficult it becomes to foresee its extended effects. Professor Born's mournful conclusion was that the contemporary scientific revolution has destroyed ethics, ushering mankind into a new world that is not only post-industrial but post-ethical.

Ethics is philosophical but practical; science is logical and mathematical in form. The result is that scientific knowledge accumulates from generation to generation like the compound interest on savings deposits. Each new scientist stands on the shoulders of those who have gone before, leaving behind him a hundred more who will do the same in turn. Each fledgling scientist begins his career by mastering the distilled essences of the work of his predecessors, and his lifetime is devoted to adding elements to the accumulated scientific edifice.

He need not, indeed, start out by retracing all the laborious steps that have brought science from its earliest beginnings to its present elevated state. If that were necessary, the progress of science would be limited to how much of it could be assimilated anew by each successive neophyte. Science could not develop beyond the limits of the scientific powers which one man could bring to bear in the course of a single lifetime.

This latter condition was roughly the case before the advent of modern science. Prior to that, the quest for both scientific and ethical knowledge proceeded in much the same way. Both were subject to similar limitations and neither could systematically develop and accumulate its findings.

When, in the seventeenth century, science acquired the power of augmentation, the growth of scientific knowledge shot up at an exponential rate, while ethical knowledge remained, and remains to this day, much as before.

The social effect of ethical knowledge —that is, its capacity for good—is limited by the amount of wisdom individual men can acquire during their lifetime, for one does not assimilate the truth of an ethical precept the way one grasps the truth of a mathematical solution. On the contrary, one must first become a philosopher to perceive the validity of the teachings of the wise men who have gone before.

Coue was wrong, with his doctrine that every day in every way we are getting better and better. His error, and that of the doctrine of progress, was in assuming that the augmentation observable in the sciences was applicable to moral philosophy. On the contrary, moral philosophy has progressed but little during its entire twenty-five hundred years of history.

Each man must learn and apply ethical truths for himself. This is an additional basis for the contemporary separation between science and ethics. As science progresses cumulatively the problems it poses become progressively more numerous and complex. The gap between science and ethics widens with each passing hour. Some relief might develop were science able to extend human longevity, permitting us to devote more time to the quest for wisdom.

Short of this, however, the only solution would appear to lie in a concerted effort to constitutionalise science, so that its progress and development can be subjected to planning and control. A new ethic of science must be developed. We face a genuine culture crisis. This would be true even if, improbably, science were to grind to a halt and technological developments based on it were to cease. If today's life scientists are correct the present crisis will shortly take an even more ominous turn.

The Life Sciences and Ethics

The life sciences—biology, genetics and so forth—are on the brink of a revolutionary development that will usurp the primacy that the physical sciences have enjoyed for over three hundred years. But note one difference: tampering with life processes demands ethical norms. Sciences that deal with life processes cannot avoid questions concerned with the goals, ends, and purposes of life.

The tragedy, however, is that such questions do not interest most scientists while philosophers by and large are not interested in what science is doing. Nonetheless, anything connected with the life processes involves ethics. It is *there*, unavoidable, lying at the heart of the life sciences. Yet the biological sciences matured under the hegemony of the physical sciences—and, more's the pity, their recent spectacular advances have come from molecular biology whose operating assumption is that life processes can be reduced to the principles of physics.

The life sciences then have reached maturity with the amoral pursuit of "objectivity" that long characterised the physical sciences. Inasmuch as life is intrinsically normative, the contemporary ethical poverty of biology must be due to some more fundamental development that made this distortion seem plausible. I suggest it was the ancient manoeuvre whereby all nature, life as well as inert matter, was made profane. The manoeuvre predated modern science by nearly sixteen hundred years. It can be traced back to that point in the Western tradition when both nature and society were secularised. The striking fact is that not science but Christianity turns out to be the culprit.

Prior to the advent of Christianity there had been no secular society and there had been no secular view of nature in Western tradition. On the contrary, as with practically every other known culture, society and nature were regarded as intrinsically sacral. This, of course, was the point at issue between the early Christians and the ancient Romans.

The Christians' way of stating this was that the one true God forbade their participation in the rituals of any other god. Viewed in the light of today's enlarged perspective, this commandment was preposterous. Worse, it smacked of the colossal effrontery of the unlettered. The urbane Romans, ironically destined to be known as pagans (peasants), pointed out that what Christians overdramatically objected to as Emperor worship was but the ritual celebration of the social order. That occurred in almost every society. Similar Roman rituals also celebrated the natural order. But the early Christians—today's Jehovah's Witnesses make much the same point—narrowly restricted the sacral to the attributes of their own remote triune God.

The issue was brought to a head four centuries later in the dramatic showdown between Saint Augustine and Bishop Faustus. Bishop Faustus represented the West's last chance to reject the hard-shell eschatology of the Christian extremists. But Augustine won that momentous battle and proceeded to establish the dualistic doctrine of the divine heavenly city and the corrupt city of this world as the official world view of the Western tradition.

What Augustine wrought was, in effect, the birth of an ideology that ultimately permitted Western science to take an amoral approach to nature. In the light of the scientific revolution of our times the Augustine-Faustus debate must be revived, overturned, and an ethical view of man, society and nature re-established.

One Answer: "Constitutionalise" Science

How would the control of developmental science, what I call constitutionalisation, work? A public corporation for developmental science can be chartered and given its constitution. Civilian control can be installed and charged with the responsibility for several functions that are now not being performed at all.

Most obvious is the need for an ombudsman to process public complaints as well as complaints from scientists inside the Establishment. The ombudsman should have positive, as well as negative, or corrective, functions. That is, in addition to investigating alleged evils he should also see that the scientific enterprise achieves its publicly approved goals. This would require a special court system of adjudication, complete with appeal procedures.

To approach science in this way requires a new conception of constitutional theory—an architectonic approach to the politics of science. In such a framework, intellectual endeavours would be thought of in broad political terms rather than merely in terms of the narrow desires of those who wish to pursue knowledge for its own, or their own, sake.

It would also require fresh thought about problems such as representation, which we thought the eighteenth century had put to rest for all times. If there is to be a new kind of public corporation for science, if it is to be under civilian control, and if the public will is to make its voice heard then there must be some way for that will to find expression.

This raises the "legislative" question of how to furnish science with responsible policy-forming and goal-establishing functions. We know that the scandalous scientific boondoggling of the recent past must be prevented. In addition to the fact that science may harm us, scientists sometimes make incredibly bad judgements about the conduct of their own affairs. Hence, science must be provided with a specially designed legislature, and, for civilian control to work, there must be participation by citizens as well as by professional scientists.

It may be that the envisioned public corporation should have a bicameral legislature, one house composed of scientists and the other of public members. One way to conceive of this would be to follow our traditional Constitutional wisdom and put financial controls and ratification powers in the public chamber and reserve the responsibility for initiating projects for the scientific chamber, with special provision for joint sessions.

The proposal for a bicameral approach to science planning and policy formation immediately raises the question of a separation of powers, a checks-and-balances feature. Each house would exercise restraint on the other; concerted action would require the cooperation of both. Obviously, this new constitutionalised scientific order should not slavishly follow the established American Constitutional separation-of-powers mechanism, but certain analogues do seem promising.

This raises the question of federalism. The general Constitutional idea of federalism is "subsidiarity." It means a preference for the local over the centralised solution to problems. There may be a need in the scientific order for a special version of this principle. This should be considered in the context of a proposed bill of rights for science.

Subsidiarity dictates that every possible scientific issue be dealt with at decentralised levels, rather than being disposed of in centralised institutions. One of the chief sources of the evils we now observe in "big science" derives primarily from its centralisation. Perhaps something like an anti-trust approach to science ought to be provided for. This might be the best way to protect local autonomy for our centres of scientific research.

This brings us to the necessity of educating the general public about leading scientific issues. Each sector could serve this need in its own characteristic manner. Representatives from the public sector would have to qualify for office in some way and the best way would be for them to stand for election on the basis of general programmes for the development of science.

Scientists, in qualifying themselves for selection by their peers, would be required to address themselves to more technical issues. Their educational role would be to uncover the extended social implications of the scientific matters at issue.

There is a danger that in democratising science we may submit it to the whims of public opinion. Many feel this would be better than leaving it to the scientists, but, of course, neither is ideal. Science is not the private property of scientists any more than the economy is the private property of businessmen, or the government the private property of politicians. Corruption occurs when scientists forget this.

Actually, a scientist is much like a real-estate investor who has bought property in the path of an expanding city. When the value of his possession rises he begins to talk and act as if *he* were responsible for it. However, the indvidual scientist is merely the one who happens to be "in possession" at the time that knowledge is provided by massive institutional, economic, and political forces of his day. Perhaps we need a new Henry George to point out that if anybody "owns" science, it is the people themselves.

Separation Of Functions: Freedom And Control

In setting our own house in order, we must face the serious problem that concerns our universities and the relationships between developmental science and the proper approach to higher education. Developmental science has already distorted our educational processes and corrupted the idea of the university. The constitutional approach allows us to correct this by separating the big developmental scientific institutes and laboratories from the universities, placing them instead under public corporations.

Indeed *all* our present professional and technical schools should properly be transferred to some such public corporation, freeing the university to safeguard the philosophic needs, the theoretical integrity, and the educational proprieties of the pursuit of knowledge without the contamination that political, financial, and practical needs now impose.

Two things that have corrupted the sciences and professions, of course, are money and power. Whenever an endeavour becomes extremely powerful or highly profitable, its moral integrity is threatened. This would make it appear that the only people capable of maintaining an ethic for a profession are the young, before they have used it to become rich and influential.

We might recall a proposition once put forward by Harold Laski. He claimed that the effective regulators of the American judiciary were the law journals, which are run by the young before they have made any money practicing law.

Perhaps we can somehow institutionalise the critical and ethical talents of youth and focus them on the conduct of the sciences. Perhaps what we need, among other things, is a number of science review journals devoted primarily to the social, political, and ethical implications of developmental science.

There must be some way of protecting the integrity of the scientific enterprise from corruption by either scientist or non-scientist. Traditionally such aims have been achieved through bills of rights. We are concerned here with matters such as academic freedom, the rights of students and teachers. We are reminded once again that intellectuals are not necessarily those best qualified to understand the true needs of their own enterprise—just as businessmen are not necessarily those best qualified to understand the true needs of the economic order.

Yet today's bureaucratic scientist continues to echo the nineteenth-century businessman's individualist ideology. A hundred years ago the laissez-faire ideology may have been adequate for the needs of both scientists and society. Today, however, the arguments for unhampered science are as irrelevant as the arguments for free private enterprise by mammoth corporations, or the arguments for an unregulated press by the mass-media monopolies.

Three-quarters of research and development grants are for directed research. A monopoly already exists in science, and scientific freedom is largely a myth. Already, grave issues concerning intellectual freedom have arisen. Are there any projects the scientist has a right to refuse to work on? Lewis Branscom has made it clear that even if present trends continue unhampered some kind of bill of rights for science and letters will have to be instituted. The archaic ideology of science and the overweening hubris of the scientist must somehow be brought down to size.

The most obvious way to do this is to provide for the constitutionalisation of science in a special polity combining principles of both democracy and the rule of law. Within this context the liberties appropriate to intellectual endeavours can find proper expression and preservation.

A bill of rights re-enforces the aforementioned need for a special court system. It would be necessary to provide for a prosecutor, subpoena power, and trial-like hearings. It is not possible for the common law side of our judicial system to assimilate easily these novel problems of adjudication. We will need a new jurisprudence of science, comparable to that we have developed for administrative law.

Policy formation for science means planning. It may well be that the essential nature of planning in the future will become subsumed under science policy—any other outcome would be almost inconceivable. No matter what problem we come up against—planning for the city of the future, demographic planning, resource conservation and development planning, or transportation planning—each begins from a scientific foundation and all have to be integrated into an over-all developmental programme for the scientific enterprise.

This requires Constitutional provision for science planning—a need that underscores the failure of our present Constitution to provide for planning of any kind. Even if science as such were to present no Constitutional issue, the need for planning should.

A number of additional problems would remain even if all the innovations proposed above were to work perfectly. (One of these is the relationship between the scientific and the military establishments.) Supplementary control devices may be required. One is a post-audit. This should be thought of in two ways: first, as a simple technical and financial post-audit to find out how appropriations were spent and whether irregularities occurred. But there must also be a *substantive* post-audit to inspect what actually was done in carrying out stated policies. This can be thought of as a retrospective application of planning-programming-budgeting techniques.

We need something similar to the British Commission of Inquiry, and its quadrennial reports could coincide with the planning process and electrol campaigns. Such a commission, if staffed by men of eminence and independence, would guarantee a quality to its reports so often produced by Presidential commissions.

Science and Internationalism

Another issue of major importance is the larger ecological aspect of the scientific order. What is this scientific order? What are its boundaries? Taken most broadly, its boundaries are those of the universe itself. This means no nation by itself can constitutionalise its own science.

Suppose America had decided to develop solid-state physics and transistor applications to maximise their usefulness to the public good and avoid the dislocations too rapid exploitation brings. Similar questions concerning the computer are actually before us. It may be that intensive research on the cultural implications of the computer should be carried out before we start using it to make everything from shoes to teaching machines, flooding the consumer market with hastily conceived gadgetry.

In Russia, there was insufficient hardware for immediate application when the computer first appeared. As a result, the Russians were forced, as they had been earlier in the field of rocketry, to address themselves first to the theoretical implications of the computer while they waited for the hardware to become more widely available. It may be that this simple technological lag permitted them to take a wiser view of the role of the computer than we had in this country, where it seeped through the technological order as a result of the extension of ballistics-control devices to industrial and administrative processes.

But the Russian example also makes clear that no one country, not even a dictatorship, can really plan in the realm of developmental science. The history of the transistor shows that Japan, or some other country, may come along and flood the world market. Ultimately what is needed, then, is a concerted effort on a world level. It makes little difference what one nation decides to do about the transistor if any other is able to do the contrary.

So it is apparent that there is an international, or trans-national, aspect to the problem of constitutionalising science. We already have trans-national industrial corporations. Perhaps the scientific order in its constitutional mode must follow the example of the trans-national industrial combine. Perhaps both in unison will provide us with avenues leading toward world order.

In any case, the problem of world order is here, built into contemporary developmental science. There is no way to avoid it, and we must recognise that efforts to control science must be integrated throughout the world.

THE BITTER COMEDY OF SAMUEL BECKETT

GUY DAVENPORT

The 1969 Nobel Prize for Literature went to Samuel Beckett, who was generally unknown until the first performance of "Waiting for Godot" in 1953. The play's theme, according to Beckett "is not despair but hope. Godot is life—aimless, but always with an element of hope." Beckett's influence on modern drama has been freely acknowledged by such younger playwrights as Edward Albee and Harold Pinter.

The following appreciation, however, calls attention to his enigmatic, plotless novels about derelicts; works which have not been widely read but may, in Professor Davenport's opinion, prove to be Beckett's major contribution to contemporary letters. A poet and critic, Guy Davenport teaches literature at the University of Kentucky and serves as associate editor of "National Review". His article is reprinted from "The Washington Post."

SAMUEL BECKETT, who was born not only on Friday the 13th but on Good Friday the 13th, 1906, has conducted the most furtive literary career since that of Marcel Proust. Until 1953 only a few readers knew his work or had heard his name, though James Joyce is said to have known part of Beckett's *Murphy* by heart.

Beckett's sudden fame came with the staging of his hilarious and blackly pessimistic play *Waiting For Godot*, in which two waifs who owe something of their wry humour to Laurel and Hardy wait for the arrival of a man named Godot, who never turns up. By the time Beckett undertook the play that made him famous, he had written five novels, which are at once the funniest and undisputably the most pessimistic novels in English—or rather in French or in both, for among Beckett's eccentricities is the curious fact that after writing brilliantly in English for seventeen years he decided to write in French.

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Since Beckett's theme is the triumph, or a good swat at triumph, of man over every disadvantage with which nature and society have hampered him, one suspects that Beckett's writing in French is simply another comic gesture.

First Novels

Murphy, his first novel, was published in 1938. In it Beckett created for the first time his standard character, a man down at heels economically and spiritually whose great desire is to achieve a Hindu-like emptiness and peace of mind by rocking meditatively in his teakwood rocking chair, his sole possession. After being almost redeemed from his philosophic vagrancy by an almost redeemed prostitute, he is blown to smithereens in a gas explosion, and his ashes are flushed down the toilet of the Abbey Theatre in Dublin, a noisy bit of plumbing which can be heard onstage.

The novel *Watt* concerns another such vagrant but worse off. Its hero is further gone in decrepitude and exists in a more inexplicable environment, the household of a Mr. Nott, whose ways are of an unnerving strangeness and whose existence is suspect.

Watt floated around for years among delighted readers, as if printing had not been invented. It was eventually brought out in Paris in the notorious Travellers Companion series of Olympia Press, though a less pornographic work has never been written.

There is another novel belonging to this period, *Mercier et Camier*, which has never been published, much less translated, though it is one of his most comic works. If its medium had been film rather than prose, it would rank with one of the great silent movies of the era of Buster Keaton. It tells of the misadventures of two Irishmen who search through unremitting rain, on trains and down alleys, for the parts of a dismembered bicycle. Why this novel has remained unpublished, no one knows.

Three Masterpieces

Beckett's masterpieces among his novels are a series of three: *Molloy, Malone Dies*, and *The Unnameable*. Here his comic genius discloses itself in all of its strange pessimism. Molloy, probably the greatest comic character in English since the heroes of Smollett in the 18th century, is an ancient Irishman with gradually deteriorating health. He tells his own story in a voice as sardonic as Irish wit ever produced.

When we first meet him, he can only ride a bicycle as dilapidated as himself, and when we last see him, he can only roll. For no apparent reason, Molloy is the object of persecution by a man named Moran, of whom it can be said that he is the meanest character in all literature, as well as the most outrageously ridiculous.

Malone is a progression, or retrogression, in deterioration. Like Molloy, he tells his own story, or rather writes it with a pencil a quarter of an inch long, and the novel ends in midsentence when the pencil is used up.

The Unnameable achieves a Beckettian absolute: its hero has forgotten who he is, and we have to be content with his faulty guesswork. The most plausible of his identities leads us to believe that he is a legless and armless man, kept in a milk jug outside an Irish restaurant. The menu is pasted on the outside of the jug, and in inclement weather the lid is put on.

The Plays

One might think that *The Unnameable* could only be the end of Beckett's determined effort to create a literature of utter helplessness and immobility, but he has gone himself one better. In 1961 he published a novel about a man who exists in a world composed entirely of mud, random cans of food, and equally random can openers. In this world one can but crawl painfully and slowly. Speech is impossible, as one's mouth is full of mud, and visibility is limited by not being able to lift one's head very high. And yet Beckett posits two characters in this novel; they meet and they communicate with jabs of the can opener.

Beckett's plays follow the same progression toward a total anguish of existence. They begin with *Waiting for Godot* and deteriorate just as philosophically as the novel. So far, after ten plays, he has achieved a bare stage with absolutely nothing happening except a hideous scream from the wings.

Beckett has written for radio, television and films, always adapting his art to the special demands of the medium. He is the most technically accomplished writer in English since his friend and fellow Irishman James Joyce. Beckett has been identified by critics with the French existentialists—probably mistakenly, as his art is a logical development of Irish comic writing, which has always been bitter, laconic and black. Beckett has simply carried the suppositions of Irish comedy to their ultimate absurdity, and has thus in a century of total war written the one great statement of man's awful and vaguely triumphant predicament.

MOLLOY
(an excerpt)

SAMUEL BECKETT

The following excerpt is from Samuel Beckett's novel, Molloy, *the first of a trilogy which includes* Malone Dies *and* The Unnameable. *It was translated from the French by Patrick Bowles in collaboration with the author.*

THAT NIGHT I had a violent scene with my son. I do not remember about what. Wait, it may be important.

No, I don't know. I have had so many scenes with my son. At the time it must have seemed a scene like any other, that's all I know.

I must have got the better of it as I always did, thanks to my infallible technique, and brought him unerringly to a proper sense of his iniquities. But the next day I realised my mistake. For waking early I found myself alone, in the shelter, I who was always the first to wake. And what is more my instinct told me I had been alone for some considerable time, my breath no longer mingling with the breath of my son, in the narrow shelter he had erected, under my supervision.

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Not that the fact of his having disappeared with the bicycle, during the night or with the first guilty flush of dawn, was in itself a matter for grave anxiety. And I would have found excellent and honourable reasons for this, if this had been all. Unfortunately he had taken his knapsack and his raincoat. And there remained nothing in the shelter, nor outside the shelter, belonging to him, absolutely nothing.

And this was not yet all, for he had left with a considerable sum of money, he who was only entitled to a few pence from time to time, for his savings box. For since he had been in charge of every thing, under my supervision of course, and notably of the shopping, I was obliged to place a certain reliance on him in the matter of money. And he always had a far greater sum in his pocket than was strictly necessary. And in order to make all this sound more likely I shall add what follows.

1. I desired him to learn double-entry book-keeping and had instructed him in its rudiments.

2. I could no longer be bothered with these wretched trifles which had once been my delight.

3. I had told him to keep an eye out, on his expeditions, for a second bicycle, light and inexpensive. For I was weary of the carrier and I also saw the day approaching when my son would no longer have the strength to pedal for the two of us. And I believed I was capable, more than that, I knew I was capable, with a little practice, of learning to pedal with one leg. And then I would resume my rightful place, I mean in the van. And my son would follow me. And then the scandal would cease of my son's defying me, and going left when I told him right, or right when I told him left, or straight on when I told him right or left as he had been doing of late, more and more frequently.

That is all I wished to add.

* * *

But on examining my pocketbook I found it contained no more than 15 shillings, which led me to the conclusion that my son had not been content with the sum already in his possession, but had gone through my pockets, before he left, while I slept. And the human breast is so bizarre that my first feeling was of gratitude for his leaving me this little sum, enough to keep me going until help arrived, and I saw in this a kind of delicacy!

I was therefore alone, with my bag, my umbrella (which he might easily have taken too) and 15 shillings, knowing myself coldly abandoned, with deliberation and no doubt premeditation, in Ballyba it is true, if indeed I was in Ballyba, but still far from Bally. And I remained for several days, I do not know how many, in the place where my son had abandoned me, eating my last provisions (which he might easily have taken too), seeing no living soul, powerless to act, or perhaps strong enough at last to act no more.

For I had no illusions, I knew that all was about to end, or to begin again, it little mattered which, and it little mattered how, I had only to wait. And on and off, for fun, and the better to scatter them to the winds, I dallied with the hopes that spring eternal, childish hopes, as for example that my son, his anger spent, would have pity on me and come back to me! Or that Molloy, whose country this was, would come to me, who had not been able to go to him, and grow to be a friend, and like a father to me, and help me do what I had to do, so that Youdi would not be angry with me and would not punish me!

Yes, I let them spring within me and grow in strength, brighten and charm me with a thousand fancies, and then I swept them away, with a great disgusted sweep of all my being, I swept myself clean of them and surveyed with satisfaction the void they had polluted.

And in the evening I turned to the lights of Bally, I watched them shine brighter and brighter, then all go out together, or nearly all, foul little flickering lights of terrified men. And I said, To think I might be there now, but for my misfortune!

And with regard to the Obidil, of whom I have refrained from speaking, until now, and whom I so longed to see face to face, all I can say with regard to him is this, that I never saw him, either face to face or darkly, perhaps there is no such person, that would not greatly surprise me.

And at the thought of the punishments Youdi might inflict upon me I was seized by such a mighty fit of laughter that I shook with mightily silent laughter and my features composed in their wonted sadness and calm.

But my whole body shook, and even my legs, so that I had to lean against a tree, or against a bush, when the fit came on me standing, my umbrella being no longer sufficient to keep me from falling. Strange laughter truly, and no doubt misnamed, through indolence perhaps, or ignorance.

And as for myself, that unfailing pastime, I must say it was far now from my thoughts. But there were moments when it did not seem so far from me, when I seemed to be drawing towards it as the sands towards the wave, when it crests and whitens. . . . I note here the little beat my heart once missed, in my home, when a fly, flying low above my ashtray, raised a little ash, with the breath of its wings.

And I grew gradually weaker and weaker and more and more content. For several days I had eaten nothing. I could probably have found blackberries and mushrooms, but I had no wish for them. I remained all day stretched out in the shelter, vaguely regretting my son's raincoat, and I crawled out in the evening to have a good laugh at the lights of Bally. And though suffering a little from wind and cramps in the stomach I felt extraordinarily content, content with myself, almost elated, enchanted with my performance. And I said, I shall soon lose consciousness altogether, it is merely a question of time. But Gaber's arrival put a stop to these frolics. •

A BALANCE SHEET OF AMERICAN LABOUR

BEN B. SELIGMAN

Is American trade unionism on the decline or is it entering a new stage of vitality and growth? The truth is somewhat more complicated, writes the author, as he relates the union movement to larger trends in American society and contrasts its development to that of European labour.

Professor Seligman heads the Labour Relations and Research Centre at the University of Massachusetts. He was formerly director of research for the Retail Clerks International Association. His books include "Main Currents in Modern Economics," "Poverty as a Public Issue," "Economics of Dissent," and a history of the American businessman, to be published later this year.

PERIODICALLY, observers of the labour scene pronounce the decay of trade unionism in America. Paul Jacobs, who set up a picket line at the age of 18, has declared that collective bargaining is dead; Solomon Barkin, a longtime leading figure in the Textile Workers Union, agrees that unionism is moribund; and B.J. Widick, a former official of the United Auto Workers, bemoans the lack of zeal that unions used to display when he was young.

On the other hand, Gus Tyler, Assistant President of the International Ladies Garment Workers Union, sees nothing but a bright future for trade unions as they move to fulfill the appeals of white collar workers for organisation, press for advances in social legislation, meet the job demands of Negroes more than halfway, and continue a long-range thrust toward becoming a genuine social movement. Tyler develops this thesis in his recent book, *The Labour Revolution*.

Which view is correct? I would suggest that neither has a strangle-hold on the truth. In fact, a balanced analysis of trade unions today must be placed somewhere between the notions of a Jacobs at one end and a Tyler at the other. The spectacles of both are rather heavily tinted, one a dark gray, the other a cheerful pink, and neither provides a clear view of the trade union movement. For like other American institutions, the unions are in a sense faithful representations of the society from which they spring: they are uneven mixtures of pragmatism and idealism, virtue and corruption, cunning and competence, sloth and energy, power and altruism.

Labour's problems are a compound of issues and questions stemming not only from bargaining, organising, and politics, but above all from the kind of perspective they have on social matters. What indeed should labour unions be like? How should they behave in organising and reaching the unorganised? What appeals on political matters ought they to be making? What social views should they subscribe to?

Limited vs. Inclusive Unionism

The late J.B.S. Hardman, a veteran labour organiser and publicist, used to speak of limited versus inclusive unionism. According to Hardman, a limited union was one that concerned itself with the worker only during his eight-hour day in the plant, ministering to his need for better wages, hours and working conditions and nothing more.

An inclusive union cast its net much wider. It was interested in the problems that affected the worker: where he lived, the way he travelled to his job, the taxes he had to pay, and what he bought at the supermarket—in short, an inclusive union was interested in the worker as a whole citizen.

Most union leaders today demonstrate a sense of unease with the inclusive approach. Their achievements have been in the areas they know best—organising and collective bargaining. Over the years, they have performed extremely well in these areas. Union leaders have evolved techniques for attaining limited objectives in ways that Professor Jack Barbash, of the University of Wisconsin, has described as quite rational: negotiations have been regularised, they are conducted at neutral sites, and they are based on a kind of "common law."

Moreover, the institutional apparatus has been rationalised, utilising a semi-professional staff of self-trained experts, spiced with sprinklings of fully trained professionals. All this has been imposed by the requirements of growth, for to contend successfully with the bureaucracies of business, it has been necessary for the unions to become bureaucracies also.

But having reached this level of development, limited unionism has seemed to many labour leaders a comfortable enough haven. Why wrestle with the problems of poverty, organising white collar workers, or making room for Negro workers in craft unions, when the safe and sane thing to do is to worry solely about shop matters? Some trade unionists, particularly in the building trades, have always rejected inclusive unionism, thereby turning away from the one element that would convert trade unions into a *labour movement.*

Such may very well be the difficulty with American unions—they really do not constitute a *labour movement* in the sense that there is a never-ending concern with the total quality of daily experience. American labour organisations comprise rather a *trade union movement* that deals only in marginal ways with issues that transcend the place of work.

Insofar as American unions consciously pursue solutions to social and political problems, they do so without philosophy and without ideology. In the main, social issues are explored in *ad hoc* fashion and then only when they press on occupational interests. Unions consequently become spokesmen for their own members and for no one else. Seldom have unions in the 20th century stepped outside the boundaries of occupation.

It has remained for reformers, radicals, academics and civil rights protagonists to take up the cry of social change. The 1930's were an exceptional period in that the massive surge of union organisational and legal victories spilled over into broad New Deal reform politics. But unions generally join the mainstream of reform only after a good deal of prodding, particularly by interested staff persons.

Solomon Barkin, then with the Textile Workers' Union, sparked legislation on Redevelopment for Depressed Areas in the late 1950's and Nelson Cruikshank, head of the AFL-CIO Department of Social Security, pressed for improvements in the federal Social Security System which were later made into law. After such enterprising individuals had done the essential spade work with legislators and after they had publicised the issues involved, then union leaders went along, oftentimes reluctantly.

Portrait of U.S. Union Members

The roots of this condition may be traced far back into U.S. industrial history. Plagued for decades by a virtually illegal status, it was not until the 1930's that unions began to attain a measure of legality. Little wonder that Section 7A of the 1934 National Recovery Act (which guaranteed the right of unions to organise and bargain collectively) was hailed as Labour's Magna Carta. For once, a unionist could display his loyalties openly and an organiser did not have to look over his shoulder as he walked down Main Street.

Most organised workers up to that time belonged to the American Federation of Labour (AFL), a loose organisation of autonomous unions. Believing in the exclusive virtues of collective bargaining and the non-ideological use of economic power, the Federation's outlook was shaped by the cautious notions of its first president, Samuel Gompers, who at the turn of the century defended labour's goal as "More, more!" The AFL believed in self-help as an article of absolute faith. Its experiences with unsympathetic administrations prior to the 1930's impelled the AFL to reject any and all forms of federal intervention in labour-management affairs.

Meanwhile, America's union workers were acquiring a middle-class outlook: they became entirely committed to the idea of private property and the viability of the capitalist order. They wanted to be respectable and accepted by the rest of society. Socialist ideas on how labour unions should function were rejected: class consciousness was not the American worker's natural outlook and as a consequence he organised himself along conservative trade lines.

If trade unionists express any ideology

at all, it is one identified with that of the middle-class. A few years ago the AFL-CIO conducted a poll of union members which provided the following picture: 45 per cent of union families were in the $7,500 (Rs. 57,000) to $15,000 (Rs. 114,000) a year income group; 32 per cent were in the $5,000 (Rs. 38,000) to $7,500 (Rs. 57,000) range. About half were under 40 years of age; a fourth under 30 years. Almost half live in comfortable suburbs.

Seventeen per cent of union members were Negro, Mexican, or Oriental, which was close to their percentage in the general population. Fifty-four per cent had been union members a decade or more, while a fourth had their membership for less than five years. Fifty-eight per cent called themselves Democrats, sixteen per cent Republicans, and twenty-six per cent were either "independents" or unsure of their political affiliation. The picture is still substantially the same.

The major problems uppermost in the minds of union members are such economic issues as taxes and high prices. The Vietnam War was identified in the AFL-CIO poll as a major current problem (although a majority supported American involvement), but civil rights was cited as an issue by only a third of the respondents. According to the polls, these views pretty much conformed to those of the majority of the population. The portrait that emerges is solidly middle-class.

Nothing that took place during the Great Depression has really altered labour's middle-class perspective despite the dramatic breakthrough in the 1930's in the mass production industries by the Congress for Industrial Organisation (CIO). Sparked by the late John L. Lewis of the Mineworkers, the CIO sought to organise workers across the board on the large mass production industries such as autos and steel, an area largely ignored by the AFL because it believed in organising by craft lines only.

The CIO's effort proved to be crucial for labour's growth and expansion. The unwillingness of the AFL Executive Council to confront the demand for organising workers in industries that had become citadels for a kind of industrial feudalism has often been told: veterans of the United Auto Workers (UAW) never weary of relating how they occupied auto factories in the Flint sit-down strike of 1936, and the UAW still shows a well-worn movie of its early history at virtually every convention. One can hardly blame them, for it was an heroic effort.

Further, the success of the CIO carried any number of AFL unions in its wake. Between 1936 and 1941, the Teamsters, a union made up largely of truck and bus drivers, tripled its membership, and the staid International Association of Machinists and the International Brotherhood of Electrical Workers began to invade mass production industry. Competition became the life of union organisation and by 1940 the trade unions had reached a total of eight million members, over 14 per cent of the work force. (Membership is now more than nineteen million, about 22 per cent of the work force.)

A Pragmatic Leadership

Idealism and an interest in broad social issues attracted an assortment of reformers and intellectuals to work as staff men and organisers, particularly in the CIO. Some were leftists who believed that the union movement could become the carrier of a New Society, though this was contrary to Marxist-Leninist dogma which taught that only political action could bring about change. To be sure, the left was later absorbed into the mainstream of the trade union movement or tossed aside.

The old line unionist might use leftist energy and enthusiasm, as John L. Lewis used many Communists, but in the main he was apt to sneer at the "do-gooder" and "intellectual" who passed through his organisation. J.B.S. Hardman used to tell of the days when he worked with Lewis in the CIO campaign to organise the mass industries. Hardman, a writer and editor with a broad political outlook, wanted to mount an educational campaign for the Steelworkers Organising Committee and set up classes in reading and writing for the workers. Lewis' negative response was characteristic: the only way to reach the workers, he told Hardman, was to "organise! organise! organise!"—punctuating each word with a thrust of his massive fist.

Men who have climbed out of the mines, shops, railroads and offices to head large union organisations are not predisposed to formulating a coherent philosophy. They function within a kind of general outlook that remains somewhat inchoate. Their experience, perspective, and middle-class expectations reflect rather a stubborn pragmatism. Despite the harsh experiences over the decades, they always had hoped to become part of American society, and now that they have arrived, labour leaders are not apt to sacrifice affluence for philosophy.

The trade union leader is a self-made man who expresses the same sort of pride in his achievements that one might have found in a successful businessman at the turn of the century. For him, too, the material values of the larger society are meritorious enough to be coveted. As David Dubinsky, retired chief of the garment workers, once exclaimed, "What's good enough for the capitalist is good enough for the worker!" Thus though he is an ardent advocate of public education for the children of his members, the trade union leader today is apt to send his own offspring to the Harvard School of Business Administration.

Yet the union official is often uneasy in the presence of intellectuals, though he has come to learn that their skills as lawyers, educators, and researchers are essential. Often the latter feel so committed to unionism that they willingly suffer the silent and sometimes not so silent barbs hurled in their direction by old-time leaders. Moving the organisation ahead even a bit seems worthwhile to the staff man, even if his comparatively technical or subtle contribution is not highly appreciated by his superiors.

Expanding Union Horizons

Gus Tyler, himself an intellectual and a labour theoretician, chides "intellectuals" for demanding that the unions undertake tasks for which they are ill-fitted. In doing this, however, he is admitting that unions can only function within narrow boundaries and that trade unions are not vehicles for social change. When Jack Conway, one of Walter Reuther's former lieutenants in the UAW, charges that "intellectuals" pose the wrong questions by asking why unions aren't doing more about poverty, discrimination, automation and internal democracy, he is admitting that unions are unable to respond to broad social problems without a good deal of prodding.

To be sure, the CIO experience served to widen the unions' horizons, but mainly to expand the meaning of Gompers' "More!" Unions became concerned with job classification, seniority and fringe benefits. All this was quite proper, for it signalled a deeper involvement in the character and impact of work than was expressed by the pay envelope alone.

Political activity was extended beyond the limits of the old labour aphorism: "Punish your enemies; reward your friends." Vital domestic and international issues were pushing society even closer to the welfare state and there was a growing realisation that many social problems could not be solved by the techniques of collective bargaining. Many in the CIO came to believe that far-reaching reform programmes rather than limited economic demands had to comprise labour's agenda.

It seemed for a while that the CIO would indeed forge a new ideology. The writers, speakers, researchers, educators, lawyers, and organisers who flocked into the CIO in the late 1930's had no fears that government would suppress the independence of the workers. Nor were they worried at the prospect that a welfare state would undermine the loyalty of workers to their unions. There was too much to be done during the 1930's and 1940's and it seemed that union progress by itself would create all the loyalties that were needed.

The CIO seemed to be heaven's answer to age-old prayers for a New Society. With such expectations, it was a harsh, abrasive discovery to learn that the American worker was like everybody else, that he could not be metamorphosed into Lenin's proletariat, that he was so middle-class that one could find in him all the traditional "bourgeois" virtues and prejudices.

The American worker could be heroic and self-sacrificing, yet he could also be passive and intolerant. Once away from the plant, the American worker preferred to hunt, read the sports page, drink beer and go to the movies, rather than attend meetings for ideological discussion or social protest.

Merger and Dissent

Nevertheless, the AFL's outlook did broaden under the cumulative organising pressures of the CIO; it even allowed some of its more radical staff people to make occasional provocative public pronouncements instead of keeping them under lock and key. The conversion went far enough to bring the AFL and CIO so close that the organisational merger of the two, which took place in 1955, seemed inevitable. There were now few ideological differences between them.

Yet, old habits prevailed. Momentum was lost and all too soon the unions abdicated their role as social catalysts. The late Walter Reuther, who came out of a socialist tradition, himself became increasingly "business union" oriented, although he criticised AFL-CIO President George Meany and the Executive Council for their "narrow" interpretation of labour's role.

To be sure, Reuther finally parted company with Meany by withdrawing his United Auto Workers from the AFL-CIO in 1968 on the grounds that the Federation had not faced up to pressing social issues. But Reuther's own efforts to meet the problems of automation and to organise white collar workers, agricultural workers, and minority groups were not always successful, although the UAW pioneered in winning from industry a supplement to unemployment insurance which together provide auto workers something close to a "guaranteed annual wage."

Reuther justifiably pointed to the wide-ranging activities of the Industrial Union Department (IUD) of the AFL-CIO, which he once directed, but these were somewhat exceptional. The IUD did involve itself in community activity, and did foster a programme to defend the consumer against attacks on his pocketbook, and did spearhead coordinated collective bargaining against such corporate giants as General Electric.

Yet all of this did not produce any strong signs of a metamorphosis, any indication that U.S. trade unions were that much closer to becoming a *labour movement,* that is, carrying on activities that deal with the broad social issues transcending the job itself.

What has happened inside the unions parallels events outside—a frequent inability to match creed and deed. The creed reflects the liberal approach to local issues. Conventions of the AFL-CIO today provide a full range of resolutions on poverty, housing, rapid transit, youth employment, aid to education, consumer protection, equal rights, and an equitable tax system. Liberals can hardly quarrel with these statements. Yet such resolutions are repeated from convention to convention and their fulfillment often requires much more effort than the unions are prepared to expend.

The Politics of Compromise

Admittedly, a resolution is little more than an expression of belief. The "pay-off," it is said, comes in the legislative process. To achieve this the unions must behave exactly like any other pressure group. That is to say, unions must practice the art of the politically possible. They must be ready to compromise issues at stake in order to achieve objectives; they must behave in the legislative arena exactly as they do across the bargaining table.

The results may be less than fully satisfactory. For example, in the extension of minimum wage coverage in 1966, the AFL-CIO had to accept exemptions from overtime regulation for two groups of retail workers in order to secure other coverage it wanted. For these retail workers the compromise was retrogression. When an AFL-CIO lobbyist was chided for sacrificing one group of workers to gain benefits for others, he shrugged, "One has to give to get."

Such concessions convert broad social problems into *ad hoc* legislative contests, each one of which can be related only to the crisis of the moment. It becomes difficult in these circumstances to elaborate a cohesive social philosophy. The trade union movement, so long as it is primarily a pressure group, cannot become a spokesman for a *labour movement.*

Historically, the limits for union political action were drawn by Samuel Gompers' pragmatic perception of union performance. For him, an overwhelming concern with broad social action was an invitation to doom. Unions were to focus on their main task—collective bargaining—and to avoid programmes that diverted energies into radical politics.

With the CIO, involvement in politics became more direct. President Roosevelt's New Deal of the 1930's had generated a different political atmosphere than existed previously, and there was an implicit exchange of favours as the administration in Washington ground out reform after reform.

The CIO imbedded itself more deeply than ever in national and local politics. Its Political Action Committee became an intimate part of American political life (albeit increasingly wed to the Democratic Party), but not until 1947 did the AFL create its own political arm, Labour's League for Political Education. The spur came from labour's vigorous opposition to the proposed (and later passed) Taft-Hartley Act which placed a number of limitations on strikes and other union tactics.

The AFL-CIO merger in 1955 combined the CIO Political Action Committee and the AFL Labour's League for Political Education into the Committee on Political Education. But soon, as in other activities, the old restrictive AFL conceptions began to submerge the broader perspectives that stemmed from the CIO. The possibility of political activity beyond mere pressure was lost, and as a consequence the unions' influence on policy decisions has remained limited.

The contrast with West European experience is striking. There the unions are but one leg of a tripod that does constitute a *labour movement*—joining together unions, political parties, and cooperatives. Hence, the economic, political, and consumer interests of the worker are more effectively related to each other than is the case in the United States, and the unions are able to exert a more direct influence on the political life of the nation than the AFL-CIO can.

Some observers have for a long time noted that the AFL-CIO's political home is in the all-embracing Democratic Party—with some exceptions, of course, since American unions are autonomous in most matters—whereas in Western Europe the unions generally have their own political organisation—either a Labour Party or a Social Democratic Party.

Organising White Collar Workers

A symptom of union ills is their present difficulty in extending the boundaries of organisation. To be sure, there are exceptions—mainly in white collar fields. Some labour organisations have made great advances in recruiting members in these areas: the American Federation of State, County and Municipal Employees, the American Federation of Government Employees, and the Retail Clerks International Association have recorded notable gains, the latter doubling its membership in about ten years.

Somewhere around 1955, the number of white collar workers in the United States began to exceed blue collar workers, reflecting fundamental changes in the economic system. Government employment expanded, particularly among teachers, who by 1960 numbered over 2.5 million, almost two-thirds more than in the previous decade. There are now many more technicians, engineers, nurses and sales clerks than in earlier decades.

Gains are bound to be made among these white collar groups even if some prefer to maintain their organisations outside the AFL-CIO, as do the nurses and engineers. At an electronics plant in Camden, engineers function as a union, negotiating with management, processing grievances, and taking part in elections supervised by the National Labour Relations Board, but they are not affiliated to the AFL-CIO. Nevertheless, their activity testifies to the growing ferment among white collar workers.

Despite the opportunities that these developments offer, the AFL-CIO has not shifted its posture nor altered its structure nor changed its tactics to take advantage of increasing discontent in the white collar field. There is no white collar department in the AFL-CIO to support organising drives, and the White Collar Council, headed by Charles Cogen of the American Federation of Teachers, has been receiving little encouragement or help from top echelons in the AFL-CIO. Most union leaders, stemming as they do from construction and manufacturing industries, seem somewhat suspicious of the white collar worker, and tend to overlook him in recruiting drives.

Union Democracy

The issue of internal union democracy has been widely discussed in recent years. Some idealists in the labour movement expect a union to be run somewhat like a 19th century New England town meeting, when reality often requires that it be operated more like a corporation in which the stock-holders are kept contented so long as dividends are declared. When union leaders cannot "deliver the goods," there is grumbling, and collective bargaining agreements painfully reached by union leaders with management are rejected by rank and file, illustrating that the town meeting idea sometimes comes to life, even today.

Contract ratification by the membership is a basic ingredient of union democracy but some management people think that it ought to be abolished in the interest of "harmonious" labour-management relations. In a sense, management persons who argue against ratification feel that its elimination would simplify collective bargaining, a dubious proposition at best. The ratification tradition is too deeply imbedded to be uprooted without an internal union revolution or perhaps a radical shake-up of leadership. For example, I.W. Abel, who recently won the presidency of the Steelworkers on a militant platform, now seems to be inviting strong internal opposition by suggesting arbitration, rather than traditional collective bargaining, as a way of settling major disputes.

Fundamentally the internal politics of most unions is not too dissimilar from that of a town council. Yet union structure has been compelled to match the forms of organisation of its antagonists: thus there is union bureaucracy to counter business bureaucracy. Perhaps this explains why broad social issues are more likely to be pursued by civil-rights organisations, university professors and students, and the churches than by unions.

Negroes and Unions

The problem of job discrimination against Negro workers is a case in point. Although the AFL-CIO has declared its strong support of civil rights, the fact remains that in some local unions, through which jobs are actually secured, Negroes still have their troubles.

Two years ago the U.S. Department of Justice had to file suit under the 1964 Civil Rights Act against two union locals—one in Indianapolis, the other in Los Angeles—charging discriminatory barriers against the admission of Negroes. Both were building trades unions that had no Negro apprentices and no Negro members. In fact, there has continued to be on the average of one such suit per month in the last year.

Unfortunately, craft unions in the past tended to adopt the discriminatory patterns of the South. Oftentimes hostility between black and white workers was deliberately fostered by employers using Negroes as strike-breakers. Not until the CIO came along were Negro workers strongly encouraged to join the union movement. Despite the presence of a dedicated Civil Rights Committee in the AFL-CIO, it has required the outside pressure of government to achieve even modest results in certain craft unions. For a balanced picture, however, it should be noted that most big industrial unions, like the Auto Workers and the Teamsters, do *not* practice racial discrimination and indeed have been active in the civil rights movement.

A good part of the problem stems from the inherited prejudices of some union members themselves: on this issue many union leaders are like generals without an army. They may want to keep the doors of opportunity open, but often this is a matter on which they can expect little rank and file support.

Union members are ordinary Americans and they reflect the prejudices and animosities they find around them. Such racial prejudice must be countered by a carefully constructed campaign of placement and education, supported by the sanction of government. An attempt by a local union officer on his own to alter the mores of his community is for him a risky adventure.

Thus equality of opportunity in some craft unions has had to be enforced by an outside agency such as the U.S. Civil Rights Commission.

In addition, the Landrum-Griffin Act of 1959 allows Negroes to sue in the courts to abolish segregated union locals. Today, of the approximately nine million Negroes in the total labour force, some 1.8 million are union members, a percentage somewhat lower than for the white sector.

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Mirror Images of Society

The union movement is confronted by other problems as well: its inability or unwillingness to change an aging leadership in the AFL-CIO Executive Council (only a public outcry moved Meany, himself well past 70 years of age, to support the replacement of several older members of the Council); an inability to find viable solutions for problems generated by technology (at the moment, this does not appear too serious, since unemployment rates are low); and its hypercaution in extending the boundaries of organisation (support for agricultural workers in Southern California came only after the Mexican-American organiser, Carlos Chavez, had achieved some success)—all suggest that as organisations, unions are mirror images of society.

American unions have served successfully as essential instruments for improving the immediate material welfare of their members (and for that purpose there are few better instruments available: union salaries and fringe benefits have risen steadily in the past four decades). But it has become necessary for other groups to become the torch bearers of change.

Within their specified limits, however, unions perform very well. If they did not exist they would have to be invented, for there is no better way to protect the job rights of workers, and this kind of protection of the worker's security and dignity has required too much struggle and effort to be dismissed lightly.

The problem for the future is whether U.S. labour unions will remain primarily economic institutions, or whether they will move in the direction of independent political involvement (as in Western Europe), or whether they will find new ways of combining immediate economic demands with broad social and political reform.

BLACK POWER AND THE UNIVERSITY

W. ARTHUR LEWIS

The recent emphasis on separatism among some black militants is based on a misunderstanding of American society, according to the author, and can prove self-defeating. In the following article, reprinted from "University: A Princeton Quarterly", he suggests a more pragmatic approach to black power through the integrated university and the integrated sector of the economy.

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WHEN A FRIEND suggested that, since I had spent all my adult life in black-power movements and in universities, I might make some comments on the highly topical subject of black power in the American university, it did not at first seem to be a good idea. Now that I have come to grips with it, I am even more conscious of my folly in tackling so difficult and controversial a subject.

I am also very conscious that my credentials are inadequate, since the black-power movements in the countries with which I am familiar differ fundamentally from black power in the United States. My stamping grounds are the West Indies, where I was born, and Africa, where I have worked, and which I visited for the fourteenth time in 1969. But in both those places blacks are the great majority of the people—97 per cent in Jamaica, 99 per cent in Nigeria. The objective of the political movements was, therefore, to capture the central legislature, and the executive and judicial powers.

In the United States, in contrast, blacks are only 11 per cent of the population, and have neither claim to nor prospect of capturing the Congress, the executive branch, or the Supreme Court for themselves alone. The objectives have

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to be different, and the strategy must also be different. Comparison between the colonial situation and the position of blacks in America is bound to mislead if it is suggested as a basis for deciding political strategy.

No Parallel with Africa

The fact of the matter is that the struggle of the blacks in America is a unique experience, with no parallel in Africa. And since it is unique, the appropriate strategies are likely to be forged only by trial and error. The goals and tactics of black power have to be adjusted to the American reality.

Take the issue of segregation. Everywhere in the black world, except among a small minority of American blacks, the fight against segregation has been in the foreground of black-power movements. This goes without saying in countries where blacks are the great majority; yet there are situations where a minority may strengthen itself by temporary self-segregation of a limited kind.

All American minorities have passed through a stage of temporary self-segregation, not just the Afro-Americans. Foreigners speak of the United States as a "melting pot" and it may one day be that; but for the present America is really not a melting pot but a welding shop. It is a country in which many different groups of people live and work together side by side, without coalescing. There are Poles, and Irish, and Chinese, and Jews, and Germans, and many other ethnic groups.

But their way of living together is set by the clock; there is integration between 7 o'clock in the morning and 5 o'clock at night, when all mingle and work together in the centre of the city, in the banks and factories, department stores and universities. After 5 o'clock each ethnic group returns to its own neighbourhood. There it has its own separate social life. There Poles do not marry Italians, even though they are both white Catholics. The neighbourhood has its own schools, its own little shops, its own doctors, and its own celebrations. Integration by day is accompanied by segregation by night.

It is important to note that this self-segregation is voluntary and not imposed by law. An Italian *can* buy a house in an Irish neighbourhood if he wishes to do so, *can* marry an Irish girl, and *can* go to an Irish Catholic Church. Many people also insist that this voluntary segregation is only a temporary phase in the acculturation of ethnic groups. They live together until they have found their feet on the American way of life, after which they disperse.

Black Neighbourhoods and Middle-Class Jobs

The immigrants from Germany and Scandinavia have for the most part already moved out of segregated neighbourhoods. The Irish and the Jews are just in the process, and sooner or later the Poles, the Chinese and even the Afro-Americans may disperse. But in the meantime this voluntary self-segregation shelters those who are not yet ready to lose themselves completely in the American mainstream.

Other people believe that there will always be cultural pluralism in America, and that this may even be a source of strength. Whether or not they are right about the long run, there is no disputing that voluntary social self-segregation is the current norm.

The black-power movement is, therefore, fully in the American tradition in recognising that certain neighbourhoods are essentially black neighbourhoods, where the black politician, the black doctor, the black teacher, the black grocer and the black clergyman are going to be able to play roles which are not open to them, *de facto,* in other neighbourhoods. Many Southern Negroes claim vigorously that blacks are better off in the South than in the North precisely because the Southern white philosophy has reserved a place for a black middle-class in the black neighbourhoods—for the black preacher or doctor or grocer.

Essentially, what black power is now saying in the North is that the North, too, should recognise that the middle-class occupations in the black neighbourhoods belong to blacks, who are not permitted to hold such jobs in Italian, Polish, or other ethnic neighbourhoods. The issue is phrased in terms of community power —that is to say, of giving to each neighbourhood control over its own institutions —but this is tied inextricably to the distribution of middle-class jobs inside the neighbourhood. It is unquestionable part of the American tradition that members of each ethnic group should be trained for the middle-class occupations in their neighbourhoods, and that, given the training, they should have preference in employment in their own neighbourhoods.

This kind of voluntary self-segregation has nothing in common with the compulsory segregation of other countries. An American neighbourhood is not a ghetto. A ghetto is an area where members of an ethnic group are forced by law to live, and from which it is a criminal offence to emerge without the licence of the oppressing power.

An American neighbourhood is not a place where members of an ethnic group are required by law to live. They may in the first instance have been forced to live there by circumstances, but it is soon transmuted, ideally, into a place where members of the group *choose* to live, and from which, ideally, anybody can emerge at any time that he wishes to do so. To confuse this neighbourhood concept with apartheid is an egregious error.

The fundamental difference between apartheid and the American neighbourhood comes out most clearly when one turns from what happens after 5 p.m. to what happens during the daytime. A neighbourhood is a work place for less than half the community. The teachers, the doctors, the police, the grocers—these work where they live. But these people are supported by the labours of those who work in the factories and in other basic occupations outside the neighbourhood. Some 50 to 60 per cent of the labour force moves out of the neighbourhood every morning to work in the country's basic industries.

So a black strategy which concentrated exclusively on building up the black neighbourhoods would be dealing with less than half the black man's economic problems. The neighbourhood itself will not flourish unless the man who goes out of it in the morning brings back into it from the outside world an income adequate to support its institutions.

The Integrated Economy

I wrote earlier that the American pattern is segregation in *social* life after 5 p.m. but integration in the *economic* life of the country during the day. American economic life is dominated by a comparatively few large corporations which do the greater part of the country's business. The world of these big corporations is an integrated world.

There will be black grocery shops in black neighbourhoods, but in your lifetime and mine there isn't going to be a black General Motors, a black Union Carbide, a black Penn-Central Railroad, or a black Standard Oil Company. These great corporations serve all ethnic groups and employ all ethnic groups. American economic life is inconceivable except on an integrated basis.

The majority of Afro-Americans work not in their neighbourhoods but for one of the non-neighbourhood corporations or employers, and so it shall be for as far ahead as we can see. The black problem is that while we are 11 per cent of the population, we have only 2 per cent of the jobs at the top, 4 per cent of the jobs in the middle, and are forced into 16 per cent of the jobs at the bottom—indeed into as much as 40 per cent of some of the jobs at the very bottom.

Clearly, our minimum objective must be to capture 11 per cent of the jobs in the middle, and 11 per cent of the jobs at the top. Or, for those of us who have a pride in ourselves, it could even be an objective to have 15 percent of the jobs at the top and in the middle, and only 8 per cent of those at the bottom, leaving the very bottom to less ambitious ethnic groups.

Not all our leaders understand that our central economic problem is not in the neighbourhoods, but is in the fact that outside the neighbourhoods, where most of us have to work, we are concentrated in the bottom jobs. For if they understood this they could not be as hostile as they are toward the black middle and upper classes. The measure of whether we are winning our battle is in how many of us rise to the middle and the top.

When a so-called militant abuses a successful Afro-American for having, by virtue of extreme hard work and immense self-discipline, managed to get to the top in the outside world, instead of devoting his energies to being—in the neighbourhood—a social worker, or a night-school teacher, or a semi-politician, such a critic is merely being absurd. Rising from the bottom to the middle or the top, in the face of stiff white competition, prejudice and arbitrary barriers, takes everything that a man can give to it. It is our militants who should month-by-month chalk up the score of those who have broken through the barriers, should glory in their achievement, and should hold it up before our young to show them what black men can achieve.

The University—Road to the Top

Now, at last, I reach my central topic, which is the black man and the university. The road to the top in the great American corporations and other institutions is through higher education. Scientists, research workers, engineers, accountants, lawyers, financial administrators, Presidential advisers—all these people are recruited from the university.

And indeed nearly all of the top people are taken from a small number of colleges —from not more than some fifty or sixty of the two thousand degree-granting institutions in the United States.

I do not mean to suggest that the most important black strategy is to get more blacks into the best colleges. Probably the greatest contribution to black advancement would be to break the trade-union barriers which keep our people out of apprenticeships in the building and printing trades, and prevent our upgrading or promotion in other industries.

The number of black people who would be at the top, if we had our numerical share of the top, would be small. Our greatest task, in terms of numbers, is to conquer the middle—getting into skilled posts, foremen's posts, supervisory and white-collar jobs—through better use of apprenticeships, better use of the high schools and of technical colleges.

I am going to discuss the universities not because this is numerically important, but partly because it has become so controversial, and partly because if we did conquer the top it would make much easier the conquering of the middle—both in our own minds, and in other people's minds, by altering our young people's image of themselves and of what they can achieve.

What can the good white college do for its black students that traditionally black universities such as Howard or Lincoln or Fisk cannot do? It can open the road into the top jobs. It can do this only by giving our people the kinds of skills and the kind of polish which are looked for by people filling top jobs. To put it in unpopular language, it can train them to become top members of the establishment.

If it is wrong for young blacks to be trained for the top jobs in the big corporations, for top jobs in the government service, for ambassadorship, for the editorial staff of *The New York Times* and so on—then there is little point in sending them to the best white colleges. On the contrary, if what one wants is people trained to live and work in black neighbourhoods, they will do much better to go to the black colleges, of which there are, after all, more than one hundred, which know much better than universities like Yale or Princeton or Dartmouth what the problems of black neighbourhoods are, and how people should be trained to handle them.

The point about the best white colleges is that they are a part, not of the neighbourhood side of American life, but of the integrated part of American life, training people to run the economy and the administration in the integrated part of the day before 5 p.m.

But how can it be wrong for young Afro-Americans to be trained to hold superior positions in the integrated working world outside the neighbourhood when in fact the neighbourhood cannot provide work for even a half of its people? Whether we like it or not, most Afro-Americans *have* to work in the integrated world, and if we do not train for superior positions there, all that will happen is what happens now—that we shall be crowded into the worst-paid jobs.

The Limits of "Black Studies"

If one grasps this point, that these

fifty colleges are the gateway to the superior jobs, then the current attitudes of some of our black leaders to these colleges is not a little bewildering. In its most extreme form, what is asked is that the college should set aside a special part of itself which is to be the black part.

There will be a separate building for black studies, and separate dormitories and living accommodations for blacks. There will be separate teachers, all black, teaching classes open only to blacks. The teachers are to be chosen by the students, and will for the most part be men whom no African or Indian or Chinese university would recognise as scholars, or be willing to hire as teachers.

Doubtless some colleges under militant pressure will give in to this, but I do not see what Afro-Americans will gain thereby. Employers will not hire the students who emerge from this process, and their usefulness even in black neighbourhoods will be minimal.

I yield to none in thinking that every respectable university should give courses on African life and on Afro-American life, which are of course two entirely different subjects, and I am very anxious to see such courses developed. It is, however, my hope that they will be attended mostly by white students, and that the majority of black students will find more important uses for their time; that they may attend one or two such courses, but will reject any suggestion that black studies must be the major focus of their programmes.

The principal argument for forcing black students to spend a great deal of their time in college studying African and Afro-American anthropology, history, languages and literature is that they need such studies to overcome their racial inferiority complex. I am not impressed by this argument. The youngster discovers that he is black around the age of six or seven; from then on, the whites he meets, the books he reads, and the situation of the Negro in America all combine to persuade him that he is an inferior species of Homo sapiens.

By the time he is fourteen or fifteen, he has made up his mind on this one way or the other. Nothing that the college can do, after he reaches eighteen or nineteen, is going to have much effect on his basic personality. To expect the colleges to eradicate the inferiority complexes of young black adults is to ask the impossible. And to expect this to come about by segregating black students in black studies under inferior teachers suggests some deficiency of thought.

Every black student should learn some Afro-American history, and study various aspects of his people's culture, but the place for him to do this compulsorily is in the high school, and the best age to start this seriously is even earlier, perhaps around the age of ten. By the time the student gets to a first-rate college he should be ready for business—for the business of acquiring the skills which he is going to be able to use, whether in his neighbourhood, or in the integrated economy.

Let the clever young black go to a university to study engineering, medicine, chemistry, economics, law, agriculture and other subjects which are going to be of value to him and his people. And let the clever white go to college to read black novels, to learn Swahili, and to record the exploits of Negro heroes of the past. They are the ones to whom this will come as an eye-opener.

Myths and Visions

This, incidentally, is very much what happens in African universities. Most of these have well-equipped departments of African studies, which are popular with visiting whites, but very few African students waste their time (as they see it) on such studies, when there is so much to be learned for the jobs they will have to do.

The attitude of Africans to their past conforms to the historian's observation that only decadent peoples, on the way down, feel an urgent need to mythologise and live in their past. A vigorous people, on the way up, is more concerned with visions of its future.

Any Afro-American who wishes to become a specialist in black studies, or to spend some of his time on such work, should be absolutely free to do so. But I hope that, of those students who get the opportunity to attend the fifty best colleges, the proportion who want to specialise in black studies may, in their interest and that of the black community, turn out to be rather small, in comparison with our scientists, or engineers, accountants, economists or doctors.

Another attitude which puzzles me is that which requires black students in the better white colleges to mix only with each other; to have a dormitory to themselves; to eat at separate tables in the refectory, and so on. I have pointed out that these colleges are the gateway to leadership positions in the integrated part of the economy, and that what they can best do for young blacks is to prepare them to capture our 11 per cent share of the best jobs at the top—one of every nine ambassadorships, one of every nine vice-presidencies of General Motors, one of every nine senior directors of engineering laboratories, and so on.

Now I am told that the reason black students stick together is that they are uncomfortable in white company. But how is one to be Ambassador to Finland or Luxembourg—jobs which American Negroes have already held with distinction—if one is uncomfortable in white company? Anybody who occupies a supervisory post, from foreman upwards, is going to have white people working under him, who will expect him to be friendly and fair. Is this going to be possible, after four years spent in boycotting white company?

Nowadays in business and in government most decisions are made in committees. Top Afro-Americans cannot hope to be more than one in nine; they will always be greatly outnumbered by white people at their level. But how can one survive as the only black vice president sitting on the executive committee of a large corporation if one is not so familiar with the ways and thoughts of other vice presidents that one can even anticipate how they are going to think?

The Limits of "Black Capitalism"

The only way to win this game is to know whites so thoroughly that we can outpace them. For us to turn our backs on this opportunity, by insisting on mingling only with other black students in college, is folly of the highest order.

This kind of social self-segregation is encouraged by two myths about the possibilities for black economic progress in the United States which need to be deflated.

The first postulates that the solution is black capitalism—to help as many blacks as possible to become businessmen. To be sure, it is feasible to have more successful small businesses operating inside the protection of the neighbourhood—more grocers and drug stores and lunch counters. But I have emphasised that the members of every ethnic group mostly work outside their neighbourhood in the integrated economy, buying from and selling to all ethnic groups. In this highly competitive part of the economy, the prospects for small business are bleak.

No doubt a few Negroes, born with the special talents which success in a highly competitive business world demands, will succeed in establishing sizable and highly competitive concerns. But the great majority who start on this road, whether white or black, go bankrupt in a short time. Indeed, about half of the new white businesses go bankrupt within the first 12 months. To tell the blacks that this is the direction in which they must move is almost a form of cruelty.

Is Revolution the Answer?

Neither is black America going to be saved by a Marxist revolution—the second myth. Revolution takes power from one set of persons and gives it to another, but it does not change the hierarchical structure of the economy.

Any kind of America that one can visualise—whether capitalist, Communist, Fascist, or any other kind—is going to consist of large institutions like General Motors under one name or another. It will have people at the top, people in the middle and people at the bottom. Its leading engineers, doctors, scientists and administrators—leaving out a few top professional politicians—are going to be recruited from a small number of highly select colleges.

The problem of the black will essentially be the same—that problem being whether he is going to be mostly in the bottom jobs, or whether he will also get his 11 per cent share of the top and the middle. And his chance at the top is going to depend on his getting into those select schools and getting the same kind of technical training that the whites are getting—not some segregated schooling specially adapted for him, but the same kind that the whites get as their gateway to the top.

In the integrated part of the American economy our essential strategy has to be to use all the normal channels of advancement—the high schools, the colleges, apprenticeships, night schools. It is only by climbing this ladder that the black man is going to escape from his concentration in the bottom jobs of the economy.

This is not, of course, simply a matter of schooling. The barriers of prejudice which keep us off the ladder still have to be broken down. The task of the civil-rights movement is still not completed, and we need all the liberal aid, black and white, that we can get to help keep the ladder clear.

We need also to raise our own sights; to recognise that there are now more opportunities than there were, and to take every opportunity that offers. Here our record is good. For as the barriers came down in sports and entertainment, our young people moved swiftly to the top in baseball, football, the theatre, or where-ever else the road was cleared. We will do exactly the same in other spheres, given the opportunity. The secret is to inspire our young people with confidence in their potential achievement.

The point which I have been trying to make is that the choice some black leaders offer us between segregation and integration is false in the American context. The struggle for community power in the neighbourhood is necessary and important. But it is not an alternative to the struggle for a better share of the integrated world outside the neighbourhood.

WAR IS NOT IN OUR GENES

SALLY CARRIGHAR

Some recent writings, notably by Konrad Lorenz and Robert Ardrey, have argued that aggression is an instinct in most higher animals, including man. In the following article, reprinted from "The New York Times Magazine," Sally Carrighar questions this thesis on the basis of her own observations of animal behaviour, as well as the evidence provided by other ethologists. The author has spent more than 30 years studying animals in their natural habitats and has written a number of widely-read books, including "One Day at Teton Marsh," "Icebound Summer," and "Wild Heritage."

THERE ARE still men and women living who can remember the horror which greeted Darwin's theory that we are "descended from apes." That phrase probably accounted in part for the revulsion because "descended from" was generally used in a more personal way—"I am descended from Scottish ancestors," that is, I am one of them, I am like them. Darwin meant, of course, "We have evolved from apes," with apes standing in for the whole range of evolved animals.

The first, grudging acceptance of evolution was in connection with physical structures: it was hard for anyone to deny such evidence as the development of gills into lungs or the gradual growth of a thinking cortex on top of a simpler brain. The idea of the evolution of behaviour, however, has been slower to win support, for there is no "fossil behaviour."

From fossil bones, guesses can be made as to the ways that the bones were used, but how can anyone ever reliably know the origins of the habits of today's animals—or of our own? Nevertheless, the evolution of behaviour is now inspiring one of biology's hottest debates.

Darwin himself laid the groundwork for it when he wrote *The Expression of Emotion in Man and Animals* and showed how closely alike the signs of emotion are. This book was largely ignored, at least in its implications, for the mechanical age had arrived and there was more interest

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in putting captive animals into pieces of apparatus, in testing their reflexes, their ability to find their way out of mazes, to count, and to discriminate between colours and forms—problems like these.

Studying Animal Behaviour

About 1950, however, a group calling themselves ethologists broke out of the laboratories, declaring that the most reliable facts about animal behaviour are secured by watching animals in their natural habitats. From the discoveries made by these thoughtful observers, it soon became clear that we really don't know very much about how most animals lead their lives, about what animals do. Dr. William Thorpe of Cambridge University was one of the first to stride boldly onto the battlefield with the statement: "There is hardly any aspect of the behaviour of animals which may not have some reference to problems in human behaviour."

Some ethologists fell on that battlefield and went back to the laboratories. The ones who stayed in the field had to endure some ridicule; they were taunted with the criticism that their work could not be a science since most of it was done without experimentation. Some of this obviously stung, for few ethologists are now simply trying to fill in the great gaps in our knowledge about the daily lives of wild animals. Work in the field must now include experimentation, and some ethologists are even confining the animals that they study in artificial environments which they call "semiwild."

Meanwhile, the behaviour of animals has fascinated the nonscientific public. Readers devour Joy Adamson's books about Elsa the lion, George Schaller's reports of his gorilla companions, and those of Jane Goodall about the chimpanzees with whom she and her husband live. An increasing number of popular films and television programmes about animals whet this interest. If orthodox biologists hold out against assuming any lines of descent in human behaviour, from all sides laymen are asking what we can learn from living animals.

What about the relationship between the sexes? What about care of the young and their training, about the health of animals and how they maintain it, their feeding habits, how they relax, and the ways in which they play? Above all, with war so great a threat in our lives, what about animal aggression?

Aggression and the Territorial Imperative

This has been the subject of two recent and readable books: *On Aggression,* by Konrad Lorenz (a noted Austrian zoologist) and *The Territorial Imperative,* by Robert Ardrey (American writer and anthropologist by avocation). Both authors declare that fighting is an instinct which demands expression in virtually all higher animals—and also in ourselves because, they claim, we have inherited this compulsion. Before examining their arguments, however, it is necessary to define exactly what is meant by aggression.

Most laymen would think at once of predatory attacks on prey for food: the pursuit, the pounce, the kill. The biological definition, however, excludes this kind of slaughter because it involves no malice.

A wolf bringing down an ill or aged caribou (a strong caribou can outrun a wolf) is no more angry than we are when we buy meat at the butcher's shop. He is merely hungry.

Nor is there any true aggression, any malice, between members of different species going about their separate ways in the wilderness they share. On a path used by many or at a water hole or salt lick, the weaker and smaller animals await their turn, letting the stronger go first without argument.

Aggressiveness in its strict biological sense, and in the sense that Lorenz and Ardrey use the word, is expressed between two members of the same species when both want the same thing. With the great majority of animals, this "same thing" will be living space in which to raise the young of the year—an animal's homesite, also known as his territory.

Sometimes aggressiveness is aroused over possession of a desired female or over rank in a hierarchy. Biologists often call the space around a disputed female a territory. It moves when she moves and the male, going along, will not allow another male to approach within a certain well-understood distance.

Lorenz and Ardrey both tie their definition of aggressiveness in mankind to home territory. They call attention to properties marked with "No Trespassing" signs and—this is their ominous and essential theme—they extend the concept of farms or suburban lots to the nation, claiming that men fight to preserve or expand their national boundaries almost as automatically as they would their homes. They fight the soldiers of other nations because their remote animal ancestors once instinctively fought for nesting site, burrow, hunting range or the space which encircles a female.

Is War Instinctive?

Thus both Lorenz and Ardrey are convinced that war is an instinctive compulsion. Lorenz says that the most important function of animal aggression "is the spacing out of individuals of one species over the available habitat, in other words, the distribution of 'territories.' " He concludes: "There cannot be any doubt, in the opinion of any biologically minded scientist, that intra-specific aggression is, in man, just as much of a spontaneous instinctive drive as in most other higher vertebrates."

Ardrey, for his part, says: "If we defend the title to our land or the sovereignty of our country, we do it for reasons no different, no less innate, no less ineradicable than do the lower animals." He also says: "All of us will give everything we have for a place of our own." And: "I believe man's innumerable territorial expressions are human responses to an imperative lying with equal force on mockingbirds and men."

Now, a widespread belief that human wars are instinctive, by which biologists mean inevitable, would of course tend to make them inevitable. Therefore it seems worthwhile to inquire whether aggression is universal in animals and just how insistent an urge it is. If aggression, as these authors insist, is a doom carried in human genes, we are predestined to wage wars, and peace efforts are useless.

It must be agreed that during mating seasons, at least, disputes over territorial boundary lines are prevalent. Spring, when most animal young are born and many conceived, is a time of much sparring for areas on which to raise them and find their food. But for some species, late summer and fall are the rutting season, and that is the time when the "territories" surrounding females are fought for. In most cases, such aggressive behaviour is related to reproductive needs.

The Meaning of Home

To the creatures themselves, territory probably means home in the same way that home, for us, means more than house. To them the need may be temporary but it is not surprising that they instinctively fight for it.

But how universally and how desperately? The doom of eternal war would not seem so inescapable for us if some animals—indeed, if any of them—can escape the compulsion.

Caribou have no territories; neither do elephants. Sea otters don't. They copulate in the water and raise their young in fronds of seaweed. Whales are not likely to have individual homesites, although no one knows definitely. Lemmings live in villages, shallow excavations in the Arctic frost mounds, with several lemmings sleeping together in each nest until a gravid female is about to give birth, when she makes a nest of her own.

These could be called colonies. There are numerous animals in the temperate zone who have communal dwellings: gophers, prairie dogs, marmots. What goes on in their hidden world, at each stage of the annual cycle, is imperfectly known for most species. Some colonies defend the territory shared by all; it appears that others do not. Within the burrow it is customary for an individual family to defend its own unit.

And what of birds, like rooks, that nest in colonies? And cowbirds, which lay their eggs in other birds' nests and then are off to live on the backs of cattle, feeding on the parasites in their hosts' fur? It is amusing to speculate on whether individual cowbirds claim certain cows as their territory. It seems unlikely.

Among primates, most monkeys live in groups. In some there is a hierarchical social organisation. Usually the dominant male has first choice when a female is in oestrus, and discord often prevails. Other groups are sexually promiscuous, and among them fighting often seems abhorrent. If youngsters are too aggressive, the adult males will separate them.

Howling monkeys claim possession of their communal areas but defend them generally with only vocal protests—as do gibbon families. When their screams fail to drive away intruders, gibbons may bite, but such occasions are very rare.

Territorial Behaviour

The English ethologist J.H. Crook recently discussed the question of territory in these terms. He explained the very flexible attitude of some birds and animals usually thought to defend territories. A territory "allows an individual to develop close familiarity with a locality. This increases its food-finding efficiency and the speed of finding refuge from enemies." But some ducks that mate on their wintering grounds, or on migration, will accompany a new spouse to its homesite instead of returning to their own.

Species may change territories in response to local conditions. Harem groups of the gelada baboon wander independently in poor feeding years but "congregate in large herds of variable size under conditions of plenty. They have no territories, their disposition directly reflecting the local food availability."

Chimpanzees, says Dr. Crook, vary the size of their parties. As a rule individuals and small groups wander over large home ranges and "territorial behaviour appears to be absent." The facts are complex, he says. "The dispersion pattern itself must depend largely on learning and tradition, and this is particularly so when we are talking about advanced mammals such as the monkeys. The sort of territory-holding present is more likely to be determined by the commodities for which the higher mammals compete than by any species-characteristic directly determined by the genes. Thus in different ecologies, territorial systems will vary or even be absent altogether."

Ardrey is not a biologist, as he himself explicitly and creditably states in his book. In reporting the work of professionals, he seems simply to have misjudged the emphasis that they put on territories and territorial aggression.

Lorenz, of course, is an ethologist of world repute, but his experience with animals is limited in a different way. He has done most of his research with tamed animals, such as geese induced by guard fences and food to live in a human environment, and with captive cichlid fishes in tanks. All creatures so confined have their aggressiveness heightened enormously.

Keeping One's Distance

As Lorenz himself explains, these two types of animals, fish and birds, are among those which demand "individual distance," meaning that they do not welcome, at any time, anywhere, the close approach of their con-specifics (the biological term for others of one's own species). Lorenz's fish and geese, disturbed by the enforced intimate association with their mates, have worked out rather elaborate rituals for "redirecting" their aggression—from mates to neighbouring males. Since these are only symbolic attacks, the adjacent male is seldom injured, and the spouse, with his aggression now neutralised, returns to his mate triumphant.

Rituals of the same sort are not employed by our own class of animals, mammals, for mammals are "contact" species —that is, they seek and enjoy the touch of their own kind. This distinction between animals who want and those who do not want to be near their con-specifics is only mentioned briefly by Lorenz, but it is actually of the most basic importance.

Lorenz sets out in detail the observation that among all strongly aggressive animals there is a very powerful inhibition against killing con-specifics. Since they do, unavoidably, often annoy one another, however, various behaviour patterns have become established to prevent fights with lethal consequences.

Lorenz describes the well-known reaction of a defeated wolf. As soon as he recognises that he will lose a fight, the wolf turns his head away, a movement that the victor immediately understands and accepts. When Lorenz described this wolf behaviour in 1952 in *King Solomon's Ring,* he spoke of it as the loser "offering his neck" to his opponent—moving evidence of good faith between wolves, inasmuch as the victor always withholds the final bite.

Since that time, Lorenz has more firmly become a "mechanist." In *On Aggression,* he describes the loser's behaviour as one of the "submissive or appeasing movements [which] have evolved from juvenile expression movements persisting into adulthood. This is not surprising to anyone who knows how strong the inhibition against attacking pups is in any normal dog." But however defined, the wolf ritual works; it prevents the killing of a con-specific.

Another form of ritualised, harmless fighting is the "tournament," such as the pushing contest between two ungulates (deer or other hoofed quadrupeds) during the rut. If they really wanted to kill each other, they would attack with their hoofs (as they do a predator). Instead they literally lock horns, each trying to make the other give way. As soon as one knows himself to be losing ground, he disengages his antlers, turns and runs, and the winner goes back to his females.

Amiable Association

Perhaps from their concentration on the subject, both Ardrey and Lorenz seem to have exaggerated impressions of the amount of con-specific aggression. When Lorenz writes of "all this fighting," and fighting as being "such an ever-present process" in nature, he is describing a wilderness that would not be recognised by those who, like myself, have lived there for years at a stretch.

On some mornings one finds blood on the snow where tracks of fox and hare collide, but that is evidence of predation, not the encounter of an animal with another of its own kind. Real aggression, usually reproductive in its origin and purpose, concerns the animals so briefly that most of the several dozen species I am familiar with spend far more than half their time—some of them as much as 11 months in the year—in casual or amiable association with their fellows.

Typical are black bears. After a rather perfunctory but successful courtship, a male returns to a drowsy life, the daytime often spent in a copse with four or five other males. (They do, however, show animosity towards one of the off-shade bears that are a colour phase of their own species. The forest rangers say that these rejected bears become neurotic.)

Both Lorenz and Ardrey distinguish too briefly between offensive and defensive fighting. Is the one who defends his territory "aggressive"? If not, if only an invader is properly so described, how many do thus intrude? Extremely few. Among wolves, one who comes into the territory of another's family may be seeking companionship (a "lone wolf" is usually an orphan). According to most observers, he is not attacked; he is simply threatened and he leaves—and is not pursued to the border.

Rats, Captivity and Clan Aggressiveness

Those who describe the wilderness from a domestic garden like Darwin's or Lorenz's fenced enclosure and laboratory or Ardrey's library, tend to put the emphasis on a few, dramatic animals like rats, wolves and lions.

Rats are contact species, and to explain some fights he saw among rats, Lorenz suggests that they were not personal confrontations, that rat clans tend to kill all outsiders. Such group aggressiveness would seem especially ominous because of the possible analogy with mankind's national wars. But here, as with geese and fish, Lorenz is presenting evidence provided by captives, and captives held in conditions so unsatisfactory as to stimulate fighting.

As Lorenz describes them: "Steiniger put brown rats from different localities into a large enclosure which provided them with completely natural living conditions. At first the individual animals seemed afraid of each other; they were not in an aggressive mood, but they bit each other if they met by chance, particularly if two were driven towards each other along one side of the enclosure, so that they collided at speed." (Most biologists, incidentally, would not call the conditions provided by an enclosure as "completely natural"—especially not if it were so small that individuals collided when racing along the fence.)

Steiniger's rats soon began to attack one another and fought until all but one pair were killed. The descendants of that pair formed a clan, which subsequently slaughtered every strange rat introduced into the habitat.

During the same years that this study was being conducted, John B. Calhoun in Baltimore was also investigating the behaviour of rats. There were fifteen rats in Steiniger's original population; fourteen in Calhoun's—also strangers to one another. But Calhoun's enclosure was sixteen times larger than Steiniger's and more favourable in other ways: "harbourages" were provided for rats pursued by hostile associates (such refuges would probably exist in the wild), and all Calhoun's rats were identified by markings.

For 27 months, from a tower in the centre of the large area, the movements of all the individual rats were recorded. After a few fights while getting acquainted, they separated into two clans, neither of which tried to eliminate the other. There was a good deal of crossing back and forth unchallenged—so often by some individuals that they were dubbed messengers.

May we then conclude that as yet there is no evidence of clan aggressiveness which can be surely identified as an evolutionary source of human wars?

The Non-Fighters

Lorenz says that only the most aggressive creatures ever form permanent pairs, but beavers mate for life. And although their gnawing teeth would serve as very effective weapons, I have never known any occasion when they were so used against con-specifics. In their cleverly built houses, behind the dams and network of canals they have constructed, they live in notable harmony with one another and with the muskrats, for whom they provide ponds and who may be welcomed into beaver houses—as badgers will receive, and make friends with, coyotes and foxes.

How would such animals have time for continual fighting? What the absent biologists do not seem to realise is that a wilderness is a community of workers. Simply finding enough to eat every day is a chancy and tiring task.

It may be a surprise to know that many animals also spend a great deal of time keeping themselves clean and, if possible, free of parasites. Primates groom one another for hours every day. One year, one of the small pretty deer mice came in to share my cabin, and sometimes I wished she would stop washing her fur. She did it so incessantly it was tiring to watch. When I bathed, sponging water over myself from the basin in which I stood, she always took up a position in front of me and went through her own bathing routine.

Such mammals as these, in rising strata of complexity—these are our ancestors, rather than the more primitive, sexually antagonistic fish and geese. Many mammals, especially the species that live in colonies, have never even developed rituals to prevent the death of con-specifics because they don't need them. Except when attacked by a predator, they quite simply do not fight.

Our immediate forebears, the primates, seem to have reached something like a summit in non-aggressiveness, since they do not fight—either as individuals or as clans. Lorenz believes that they do not attack their associates because they do not have such effective weapons as the teeth of wolves or the paws of lions, but would not the arm of a full-grown male gorilla be as strong as a lion's paw?

We do not know which mammals were the nearest ancestors of primates, but there are sufficient numbers of non-aggressive creatures living even today to suggest that cooperation was becoming the habit of evolving mammals before the primates developed. What, therefore, has happened? Man obviously is an aggressive animal. We have lost both the peacefulness and the inhibition against killing others of our own kind. Is there an explanation?

Man's Learned Aggressiveness

As Lorenz points out, aggressiveness can be taught. It is also intensified when it is exercised (and atrophies when it is not). When men began to settle in communities, they learned the irritations of being crowded. By then they had probably learned the use of weapons, originally for the purpose of killing game. And since they had already acquired at least a rudimentary speech, they could absorb from one another, and preach, animosity. With words, they could incite hatred against neighbouring tribes. A leader, coveting power or property, could, with propaganda, instill in his subjects admiration for warlike attitudes.

Perhaps that is the way—culturally rather than genetically—that human aggressiveness arose. As for sadism, something no animal displays, it is my belief that the trait is psychotic.

Nothing could more effectively prolong man's fighting behaviour than a belief that aggression is in our genes. An unwelcome cultural inheritance can be eradicated fairly quickly and easily, but the incentive to do it is lacking while people believe that aggression is innate and instinctive with us, as both Ardrey and Lorenz declare.

More than 100 years ago, the philosopher William Whewell wrote: "There is a mask of theory over the whole face of nature." Anyone writing about the wilderness has a great responsibility not to accept too readily a belief that the mask is nature's true face. In a chaotic and perfidious world, nature is all we have that is infallibly real.

If writers assert their own, unproven hypotheses as the truth, civilised people, so isolated from the wilderness that they cannot recognise a fallacy when they hear or see one, will be deprived of their one lifeline to what may be felt intuitively as sane and good. Then if ever the intuition is lost—what is there left for anybody but madness?

NATION-BUILDING IN THE THIRD WORLD

ROGER E. KANET

ISSUES OF POLITICAL DEVELOPMENT. By Charles W. Anderson, Fred R. von der Mehden, and Crawford Young. Prentice-Hall. 235pp.

Professor Kanet teaches political science at the University of Kansas and has a special interest in the development problems of new nations. His review of "Issues in Political Development" is reprinted from "Orbis," a quarterly journal of world affairs.

PROFESSORS ANDERSON, von der Mehden and Young have produced a readable and enlightening treatise on the major problems facing the governments of developing countries in Asia, Africa and Latin America. Although they point to problems shared in common, they are well aware of the differences which exist in the Third World and make no claims that all of these countries are following the same path toward social, economic and political progress.

A number of authors focusing on the developing nations have tried to present a broad-range theory of developmental politics, only to end with a deductively derived theory that has little relationship to existing political systems. Others have catalogued events in one country, one geographical area or the entire Third World without endeavouring to "get at" their meaning. The authors of *Issues of Political Development* have attempted to develop middle-range theory based on empirical evidence.

Their book, organised around three basic problems common to most developing nations—nation building, sustained domestic violence, and socialism as related to the aspiration for economic advancement—provides a comparative

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study of developmental politics.

They first examine the cultural factors that determine whether national solidarity exists—race, ethnicity and language, religion and caste, regionalism—arguing convincingly that an understanding of cultural pluralism is essential to an evaluation of the problem of national unity. This contention is supported with numerous examples of cultural pluralism throughout the Third World.

But by what means have various cultural groups been able to live together harmoniously? It is here that the authors' analysis is weakest. Some countries are apparently integrating various cultural groups into one nation with success, yet the authors do not give much attention to the examples of relatively successful integration. After a rather detailed treatment of "the activation of cultural conflict," they merely mention that the reader should not be misled into thinking that a heightening of cultural conflict is inevitable.

In dealing with the problem of domestic violence or internal war they evaluate some of the traditional explanations for its prevalence, among them the reaction to the colonial experience and the existence of a national culture of violence, and decide that no single explanation is supported by conclusive evidence.

Their discussion includes factors such as political culture, the colonial experience, personal alienation and a quest for meaning in life, as well as "alleged failures of governments to achieve the proclaimed goals of independence and to defend the nation." This is one of the finest treatments of the cause of revolutionary unrest in developing countries, although it could have been more adequately related to the findings concerning cultural pluralism.

One of the most interesting parts of the study is that centering on problems of economic development and the appeal of a socialist model in many of the emerging nations. After examining the various meanings of "revolution" and "socialism," the authors conclude that there is no core meaning for these concepts as used by leaders in the developing countries.

In some countries "revolution" is a "continuing and permanent symbol, furnishing legitimacy to an established regime," as in Algeria, Burma and Mexico. Elsewhere "revolution" is a symbol used to indicate reformist intent. It also refers to a historical act which has little influence on contemporary politics.

A number of questions are then posed concerning the use of the word "revolution"—questions that need answers if we are ever to gain a deeper understanding of developmental politics. For example, why do some groups employ the rhetoric of revolution, while others do not? How do past experiences, political culture, and the like relate to the use or nonuse of revolutionary symbolism?

As for "socialism," anything from the moderate, welfare socialism of Kenyatta to the radical socialism of Sekou Toure fits under the concept. For many leaders of Africa and Asia, capitalism and colonialism are inseparable and, therefore, capitalism is condemned as inapplicable to a nationalist state. For many leaders, the ideas of nationalism, independence, economic development and socialism are interwoven. Yet the important questions concern the effect an ideological commitment to any type of socialism actually has on economic policies.

The authors maintain that the only significant difference in economic policy between those countries which are avowedly socialist and those avowedly nonsocialist is that the former are likely to exercise greater control over small business and commerce. In the socialist countries the role of government in capital formation is somewhat larger, and a moderately higher percentage of the governmental budget is used for socioeconomic functions.

However, with respect to public entrepreneurship, the two types of states tend to play similar roles—at least in the areas of transportation, power, mineral resources and heavy industry. Accordingly, "it appears that the only real difference between a socialist and nonsocialist policy is that the socialist government will put into ideological context that which the nonsocialist government will also do on purely pragmatic grounds." This does not mean that the developing countries are following a path charted either in the West or the East; most of them seem to be building the type of economy in which both state and private enterprise share in the development of the country's wealth.

The willingness of the authors to explore different approaches to political development without attempting to impose a specific model is refreshing. We are not told that a particular method is "the best" for achieving a particular goal. Socialism and revolution are not dismissed as aberrations from an acceptable model of development, but are examined with regard to the role they can and do play in political and economic development.

The authors have provided us with an excellent introduction to the problems facing the developing countries. They have outlined the different approaches Third World leaders are employing in an attempt to meet these problems. They have made some sense of the terms "revolution" and "socialism" and have shown what they mean in various countries. Yet their study is unsatisfying—as are most studies of comparative developmental politics—insofar as they do not supply many answers.

They point out the inadequacies of traditional explanations of developments in the Third World, but are unable to present acceptable explanations in their stead. They call attention to problems, ask questions and leave it to others to follow the leads indicated. Nevertheless, merely posing the questions, and eliminating some of the answers is an important contribution, given the handicap of inadequate data, the lack of a theory of government stability, and the generally underdeveloped state of political science as a discipline.

WHY STUDENTS REBEL

OTTO KLINEBERG

THE CONFLICT OF GENERATIONS: The Character and Significance of Student Movements. By Lewis Feuer. New York: Basic Books. 543 pp.

"The Conflict of Generations" by Lewis Feuer is the most comprehensive history yet published of student movements around the world. It also offers a highly controversial Freudian theory of the sources of youthful revolt. The following review, reprinted from "Saturday Review", is by a noted professor of psychology, long associated with Columbia University in New York, and now at the University of Paris.

THE LITERATURE dealing with recent student action in the universities of the world would fill a substantial library. Not only in the United States, but also in France and Great Britain, publications have been and continue to be prolific. Research goes on, through surveys and public opinion polls, content analysis of the statements of activists, in-depth interviews, life histories, and questionnaires. Sociologists, political scientists, psychologists and psychiatrists, educators, journalists, and many of the student leaders themselves have made their contributions to this literature.

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Interpretations of student movements range far and wide: too permissive child training; a neo-Marxist revolution, with Professor Herbert Marcuse as its prophet; an international conspiracy of subversion; anomy and alienation of youth; reaction against the Vietnam war, or war in general; dislike of the consumer society and what it stands for; disillusionment with the competitiveness and the false and hypocritical standards that characterise our times; revolution for its own sake or for the thrills that accompany it; rebellion against a university system that treats young adults as children; the battle for civil rights; the demand for student participation in all decisions that affect them; the attack on the universities as symbols and representatives of a decadent social system; and so on.

Lewis Feuer is a professor of philosophy and sociology, formerly with the University of California at Berkeley—where he witnessed and reported on the student uprising—and now at the University of Toronto. He has added his interpretation of student movements in *The Conflict of Generations: The Character and Significance of Student Movements.* As he has already indicated in a series of articles that preceded the publication of this book, his theory is a universal one, applicable to the revolts that occurred during the last century in Germany and in Russia, as well as to the recent disturbances in New York, Paris, and Tokyo.

In essence, his theory holds that student movements represent a revolt of the sons against the fathers, a conflict of generations which can only be understood in Freudian terms as an expression of the Oedipal conflict. The parents undergo a "de-authorisation" (Feuer's term); the young no longer respect them, and the consequence is rebellion.

History and Psychology

Feuer has really written two books in one. The first, descriptive and historical, is superb; the second, interpretative and psychological, is doubtful and unconvincing. I found his account of student movements past and present, and in many of the countries of the world, rich in information and fascinating reading. Everyone concerned with student movements at one university or in one country at this particular time could benefit by this opportunity to see the problem in fuller perspective.

In terms of historical data, some of the parallels that Feuer has uncovered between today's revolts and those of earlier times are striking indeed. He writes, for example: "The scene at the University of St. Petersburg (at the turn of the century) was much like the exceptional scene at the University of California sixty years later." And again: "The advisory commission of Moscow University in 1901, for instance, summarised the students' condition in terms which astonish one because they are so like those used to characterise the California students in 1964. The same words appear — 'isolation,' 'alienation' — the same plaint of the impersonality of the university, the lack of personal contact with the professors, and the dehumanising rules and infringements on freedom of speech and assembly." (Many of these same themes entered into the situation at the Sorbonne in 1968).

Feuer's cross-national perspective is as rewarding as his use of historical material. Having witnessed the troubles at Berkeley, he also met with and interviewed student dissenters in Japan and the Soviet Union. For other areas of the world he relies on a rich and varied documentation, and the bibliographical references alone would justify the publication of this volume.

Reasons for Revolt

Certainly students—at least some students—are in revolt almost everywhere, although not always for the same reasons. In France, the major reason was an outmoded university system—which had not kept up with the tremendous increase in student population—characterised by huge classes, the inaccessibility of the professors, and a rigid, arbitrary system of examinations; the cry was for "participation" on the part of the students.

In Poland, Czechoslovakia, Portugal, and Spain, revolt has been motivated by the desire for more personal freedom, more democracy in the Western sense. One incident in South Africa was a protest against the Government's action in vetoing the appointment of a black professor of anthropology. One in Brazil was related to the dismissal of a number of allegedly left-wing professors.

At New York's Columbia University, the revolt took the form of opposition to the war effort (symbolised by the university's support of the Institute for Defence Analysis) and to "racism" (the building of a new gymnasium in a park used by Harlem residents). In Belgium and Canada, student movements have been affected by the conflict between language groups.

Elsewhere there have been attempts to abolish examinations; to get rid of unpopular professors, or to demand the reinstatement of more popular ones who have been dismissed; to open the doors more widely to students from underprivileged environments who would normally not be accepted by universities; to protest against international treaties and alignments, and so forth.

In many places, too, student revolts are directed against universities as symbols of the larger society; this sometimes is a neo-Marxist revolution, directed equally against the American system on the one hand and Soviet bureaucracy on the other. In this and other instances, students often appear to be much clearer about what they are "against" than what they are "for." It is a temptation to conclude that the students are rebels looking for a cause; sometimes they find one with which adults can sympathise, sometimes not.

Sons vs. Fathers

Feuer concludes that there is a fundamental unity to student movements; irrespective of time and place, they are responsive to the same psychological mechanisms. They are all essentially due to a conflict of generations, with the young rising up in revolt against the old —their fathers or father substitutes. Feuer sees student movements characterised "by the highest degree of selflessness, generosity, compassion, and readiness for self-sacrifice," but also by the "obscure unconscious workings of generational conflict." There is a widespread feeling that the older generation has failed.

Following Freud's *Totem and Taboo,* Feuer writes in his own discussion of the German student movement in the early 19th century:

> *"Terrorism and the assassination of symbolic figures of the older generation have become tactics for student movements not because they are politically wise or helpful or conducive to the goals one is seeking on a manifest level; rather they have been adopted*

> *because they satisfy the needs of generational hatred on the latent, unconscious level."*

Just as the sons who killed the father in Freud's "primal horde" were later overcome by remorse and denied themselves the fruits of their parricide, so, too, "suicidal tendencies and self-destructive imagery were traits of the students' consciousness because the student activists were punishing themselves; since they were incompletely liberated from their fathers, their unconscious demanded that their symbolic murder of the father be atoned for by self-inflicted death." Elsewhere Feuer suggests that the resort to violence, especially against the police, is to be explained at least in part by such "suicidal" tendencies.

This Freudian-Oedipal theme recurs throughout the volume. Gavrilo Princip, the Bosnian student who killed the Archduke Franz Ferdinand in 1914, really killed "an imperial father figure." In Czarist Russia the conflict of fathers and sons "generated emotions of guilt which coloured all one's social perceptions." In the case of traditional, "underdeveloped" societies, the major revolt is against gerontocracy, the rule of the elders. In France, Germany, and the United States (where until recently we had a "generational equilibrium") we see the same pattern of rebellion; in Berkeley, described by Feuer as the freest university campus in the United States, the common enemy was "paternalism (a word endlessly repeated) and the System."

The concept of alienation is a key to students' protests everywhere; when alienation is total it takes the form of nihilism, "a generational 'no,' the cultural equivalent of the primal parricide." In a sense the student feels that his guilt is "that of his generational revolt, his would-be parricide. He can conquer this guilt only with the demonstration that he is selflesss....To reduce this determinism of unconscious guilt has been one purpose of this study."

Questions and Reservations

This summary hardly does justice to Feuer's ingenious interweaving of psychoanalysis with history and sociology. I can only add that even a careful and interested reading of the volume leaves me unconvinced. As one who admires Freud for his gift of a greater insight into human behaviour than anyone else has supplied, I still have serious questions about Feuer's application of psychoanalytic concepts to the complicated problem of student revolt. For one thing, *Totem and Taboo,* which supplies the theoretical underpinning for Feuer's book, is one of the least satisfying of Freud's publications, criticised by anthropologists and psychoanalysts alike.

In addition, Feuer's thesis leaves too many fundamental questions unanswered. Why are some students more in revolt than others? Do the activists have a more negative attitude toward the father figure than those who have remained quiet? (Some recent research appears to indicate just the opposite.)

Why is there so much more revolt among students than among non-students? Is there any reason why the latter should be more prepared to respect parental authority? Do the students not have some legitimate reasons for complaint—the Vietnam war, racism, their status in the community, the outmoded structure of the universities in some cases, the lack of freedom of expression in others?

There are other questions. Why should there be more revolt against well-to-do and successful fathers than against those who are poor? Why do young people, including students, sometimes accept father figures, like Eisenhower in the United States, de Gaulle (until recently) in France, Mao in China? Why should revolt against the fathers be accompanied by sexual asceticism at one time and place, and almost complete sexual liberty at others? Is battling the police really to be explained as a suicidal tendency? Must the move to get rid of an unpopular professor be related necessarily to generational revolt (as a father substitute) even when the professor is deservedly unpopular?

Perhaps it is unfair to present Professor Feuer with a list of questions difficult to answer, but it seems to me that they are all pertinent to his particular explanation of student movements. He has made a real contribution to our knowledge, but he has not been so successful in adding to our understanding. What this amounts to is that I prefer Feuer without Freud.

BOOK NOTES

The books briefly reviewed in these notes are available in all or most of the American Libraries in India. These libraries are located in Bombay, Calcutta, Madras and New Delhi.

AMERICAN EDUCATION IN FOREIGN PERSPECTIVES: TWENTIETH CENTURY ESSAYS. Comp. by Stewart E. Fraser. Wiley, 1969. 525p. This cross-cultural analysis, written by foreign educators from their first hand experiences, provides a panoramic view of twentieth century American education. It covers some of the highlights of American education since the turn of the century, touching philosophical aspects and their practical application.

THE ARTS AND MAN; A WORLD VIEW OF THE ROLE AND FUNCTIONS OF THE ARTS IN SOCIETY. Unesco, Prentice-Hall, 1969. 171p. Through words and pictures this book describes ways in which the arts embody the human spirit. It contains nine articles written by specialists from various countries including India and America.

THE CONSERVATIVE TRADITION IN AMERICAN THOUGHT; AN ANTHOLOGY. Comp. by Jay A. Sigler. Putnam, 1969. 375p. Conservative thought from America's colonial period to the present is summarised here with examples of the writing of each period. This book defines the character of American conservatism, explores its origins and particular qualities, and shows how it differs from and relates to European conservatism.

THE DECLINE OF RADICALISM; REFLECTIONS ON AMERICA TODAY, by Daniel Joseph Boorstin. Random, 1969. 141p. In these essays concerned with the shapings of civilisations, the author draws fine distinctions between disagreement and dissent, between radicalism and barbarianism, between community majority and violent minority, between experience and sensation. He notes that the risk inherent in dissent is that dissent can move into dissension, which in turn tears apart the fabric of society dependent, as it always is, on constructive cooperation.

THE KENNEDY LEGACY by Theodore C. Sorensen. Macmillan, 1969. 414p. This is a highly sympathetic appraisal of the career, ideals, and programmes of John F. and Robert F. Kennedy, together with the author's assessment of how their legacy in American public service may logically shape future American policy, domestic and international.

THE LIBERAL TRADITION IN AMERICAN THOUGHT; AN ANTHOLOGY. Compiled by Walter E. Volkomer. Putnam, 1969. 352p. Here an effort is made to trace the liberal tradition in American politics from colonial days. What is most striking is the emphasis on the comparatively recent origin of contemporary liberalism's main beliefs. In the selection of materials there is a frank acceptance of the fact that liberalism has been identified with different ideas during different periods of American history.

THE LIBERAL UNIVERSITY; AN INSTITUTIONAL ANALYSIS, by James Douglas Brown. McGraw-Hill, 1969. 263p. The Dean of Princeton University analyses the problems of the liberal university at this moment in history when such institutions are caught in the midst of powerful economic, social, and educational pressures. He approaches his subject through four areas of concern: organisational structure, key policy issues, problems of economy and control, and external relations.

LITERATURE AND THE SIXTH SENSE, by Philip Rahv. Houghton, 1969. 445p. Here is a collection of forty essays written over the last thirty years by the founding editor of *Partisan Review* who is now a professor of English at Brandeis University. The book is a long, rich, clearly voiced monologue, packed with information covering a century and a quarter of the literary scene, and written with awareness of history as a complex, ongoing process of change and development.

MARGARET SANGER: PIONEER OF THE FUTURE, by Emily Taft Douglas. Holt 1970. 274p. Sixty years ago Mrs. Sanger's campaign for birth control brought her ridicule and imprisonment. Her crusade took her on numerous trips to many countries including India where she met Tagore and Gandhi to discuss this world problem—all described in a biography by a former Congress woman and the wife of an American Senator.

MASTER MINDS; PORTRAITS OF CONTEMPORARY AMERICAN ARTISTS AND INTELLECTUALS, by Richard Kostelanetz. Macmillan, 1969. 370p. Focusing on fourteen of America's most widely known intellectuals and artists, the author of this volume discusses recent achievements in American culture, from the eccentric genius of Allen Ginsberg to the unthinkable thoughts of Herman Kahn.

PARTNERS IN DEVELOPMENT. Report of the Commission on International Development. Praeger, 1969. 399p. This is the official report of a panel commissioned in 1967 by the International Bank for Reconstruction and Development to examine the record of twenty years of foreign development and to propose new programmes to meet requirements of the 1970s. The comprehensive one-volume analysis of foreign aid developments also outlines the requirements of the developing areas and the concomitant responsibilities of the free, industrialised nations.

RESPONSIBILITY IN MASS COMMUNICATION, by William L. Rivers and Wilbur Schramm. Harper, 1969. 314p. Originally published in 1957, this updated edition includes the codes of ethics and practices of the communication industries. The book is a serious study of the impact of mass communication on society, the conflict between freedom and restraint in handling news, and the responsibilities of and relationships between the public, government, and the media.

SAUL BELLOW'S FICTION, by Irving Malin. Southern Illinois Univ., 1969. 179p. This book is a brief, interpretative, critical study of the works of a distinguished contemporary American novelist. The author seeks to identify the basic themes in Bellow's novels and to explain his view of the human condition.

THE THIRD BOOK OF CRITICISM, by Randall Jarrell. Farrar, 1969. 334p. Gathered together here are nine essays of literary criticism by a noted poet-critic. These thoughtful essays first appeared in various journals, as introductions to books by other writers, or in anthologies. Written in an urbane and engaging style, the essays demonstrate the author's breadth of vision, wisdom, generosity, and his unfailing sense of the beautiful and the good.